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ECONOMIC AFFAIRS

No. 157

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PEOPLE'S REPUBLIC OF CHINA

ECONOMIC PLANNING

SICHUAN GOVERNMENT WORK REPORT PUBLISHED

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[Government work report by Sichuan Province Governor Lu Dadong [7627 2192 2639] delivered at third meeting of Sichuan Fifth Provincial People's Congress, 22 April 1981]

[Text] Delegates: I now report on government work to the provincial people's congress on behalf of the provincial People's Government, and I request your examination and approval.

1. A Survey of the Year's Work

Since the second meeting of the Fifth Provincial People's Congress in December 1979, under the leadership of the party Central Committee, the State Council and the provincial party committee, the provincial government has mobilized and organized the people of all nationalities in the province to implement conscientiously the line and the general and specific policies of the Third Plenum of the 11th Central Committee, making a major effort to consolidate and develop the political situation of stability and solidarity and to implement readjustment, reform, rectification and advancement of the national economy, and have basically carried out the main tasks laid down by the last meeting.

In this period of over a year, the spirit of the Third Plenum of the 11th Central Committee has deeply penetrated into people's minds, and all policies have been further implemented. Activism has been mobilized in all areas and the people are in an unworried frame of mind and in energetic spirits, the social and political situation is stable, and the economy is full of vitality. Total agricultural output increased by 5 percent over 1979, and total grain output was 65.28 billion jin, an increase of 1.26 billion jin, constituting a rather good continuation of the 3 successive bumper harvests following the smashing of the "gang of four." Total industrial output was 26.285 billion yuan, an increase of 6.8 percent. Commerce is thriving and the markets are flourishing, and social commodity retail sales have increased by 18.3 percent. The total value of foreign trade and export commodities has increased by 31.6 percent, and revenues and expenditures are in balance. The rate of population growth is continuing to decline. The national income has increased, and there has been a definite improvement in living conditions. In 1980 rural commune members

provincewide received an average grain ration of 527 jin from collective distribution, and the sum of 82.82 yuan from distribution of profits. On the basis of a study of 2,181 commune member households, the average peasant's net income from collective distribution and family sideline occupations was 187.9 yuan, up 31.9 yuan from last year. Some 400,000 urban unemployed have been placed in jobs. The average annual wage for the province's white collar and blue collar workers was 743 yuan, up 104 yuan from 1979, and real wages still showed a certain increase in spite of increased prices. Generally speaking, the overall situation in the province is very good.

In the past year, we have continued to liberate our thinking, implement policy, enliven the economy, develop the excellent situation, and have concentrated on the following types of work:

A. Implementing the Rural Economic Policies

We have continued to implement the policy of resting and recuperation in the countryside and have thoroughly implemented the party Central Committee's document "Several Problems in Connection with Further Strengthening and Improving the Agricultural Production Responsibility System," the provincial party committee's document "Some Views on Further Implementing Economic Policy So As to Gradually Increase the Wealth of the Production Teams" and the two decisions on developing the economies of mountainous regions and assisting poor brigades, we have respected the production teams' autonomy, have improved the system "of production commitments down to the workteam level" in the main fields and the figuring of compensation in terms of output, have implemented the "four specializations and one guarantee "for many types of operations, industries and sideline occupations, have instituted such responsibility systems as contracting production for each laborer and production commitments down to the household level, have increased the size of private plots and feed plots, have encouraged commune members to engage successfully in family sideline occupations, have adjusted purchasing policy for agricultural and sideline products, have given free rein to urban farmers' markets, and have greatly mobilized the peasants' enthusiasm. At the same time, we have made a start in adjusting crop disposition, and have adjusted forestry and livestock raising policy and production policy for mountain regions and national areas, making the agricultural structure gradually more rational. In 1980 the province's total output value from forestry, stock raising, sideline occupations and fish raising had reached 31.2 per-ent of its total agricultural output value, an increase of 31.2 percent over the 1979 figure of 29.4 percent, and the output value from commune and brigade enterprises had reached 3.02 billion yuan, up 19.4 percent from 1979.

B. Continued Implementation of Reform of the Economic System

The province has expanded its experiments with expanded enterprise autonomy, and the number of local industrial enterprises has increased from last year's 84 to 417, and the number of commercial enterprises from 40 to 238. The experimental method has been improved, increasing the enterprises' autonomy in production, exchange and distribution and linking state, collective and

individual interests even more closely together, so that the enterprises have an internal impetus and the staff and workers have an increased concern for the results of enterprise management. Amid many difficult problems connected with production tasks, energy supply and the finding of markets for products, these enterprises have worked hard to improve their management and have achieved excellent economic results. The results obtained by enterprises experimenting in taking responsibility for profit and loss has been particularly outstanding: 5 participating industrial enterprises increased their output value by 42.7 percent, while the profits taxes and fixed assets taxes which they paid increased by 49.1 percent; 88 participating commercial enterprises increased sales by 21.81 percent, and the amount paid to the state increased by 17.6 percent.

In the process of reforming the economic system, many cases of coexistence of different economic components, simultaneous use of different management forms, and existence of parallel circulation channels have been instituted, and market adjustment under the guidance of the state plan has been pursued, resulting in the emergence of limited competition and promoting economic integration. The enterprises may contract for their production assignments, procure raw materials, and sell their own products; the commercial and goods and materials departments practice flexible management and arrange their own goods and materials sources, thus breaking free of the restraints against entry of the means of production into the market, have improved the situation of state monopoly purchase of commodities and distribution solely on the basis of the plan, and have increased the number of circulation channels, decreased the number of links in circulation, stimulated production and invigorated the market.

The planning, financial, banking, commodities, supply and marketing, and foreign trade systems have also undergone further reform.

C. Preliminary Readjustment of the National Economy

We are dealing vigorously with agricultural production and are giving priority to the development of light industry and textiles. We have readjusted the service orientation of heavy industry and made some changes in the proportionalities between agriculture and light and heavy industry. The output value of light industrial and textile products has increased by 17.5 percent, rising from a 41.5 percent share of total industrial output to a 45.7 percent share. Heavy industry has cut back on its overstocked products and increased output of products with a ready market. More than 600 enterprises whose product quality is poor, whose expenditures are high or which have lost money for long periods have been closed, stopped production, or have been merged or had their production converted. The investment orientation with regard to capital construction has been adjusted, and the proportion of non-production capital construction investments has been increased from 30.14 percent to 39.64 percent, with increased emphasis placed on urban housing, education, cultural and public health facilities, commercial warehouses and outlets, urban public services and the like. In particular, there has been a rather large increase in urban housing construction: in 1980, 6.01 million square meters of housing was constructed in the cities and towns of the province. As regards the ownership system, the urban collective economy has been considerably developed, and individually-run operations have also increased somewhat.

D. Development of Science and Technology, Education and Culture, and Public Health Service

We are continuing energetic implementation of the policy on intellectuals, have evaluated and promoted more than 34,000 specialists in various areas in technical positions equivalent to engineer and above, have gradually improved their study, work and living conditions and have further enlisted the intellectuals' enthusiasm. We have strengthened research and the dissemination of applied science and technology, have instituted economic contracts between scientific research units and production units on a trial basis so as to integrate scientific research with production, and have gradually developed toward socialization. Last year 287 scientific research projects received major province-level awards for scientific and technical achievement. We have rectified the teaching curriculum and intensified expansion of the number of teachers, have increased the quantities of educational equipment and have improved teaching quality. Enrollment in advanced education has reached 74,700 persons, a new record. There has been recovery and development in intermediate specialized education. Experiments in reforming the structure of general education have been made. Employee education, television education and correspondence education have also been expanded, and more than a million workers are currently participating in education. Much work has been done in the medical and health area to improve the level of health of the populace. There have been great achievements in birth control, and the natural growth rate of the population has dropped from the 1979 figure of 6.7 per thousand to 4.4 per thousand, the lowest annual rate since birth control work was begun in this province.

In the cultural, physical education, news, publication and broadcasting services, the party's line and general and specific policies are being propagandized, good social morality and practices are being advocated, scientific knowledge is being popularized, and an active influence has been exerted in enriching cultural life.

E. The Development of Political Rights and Civil Administration and Justice Work Have Been Strengthened

Of the province's 212 counties, municipalities and districts, 211 have produced people's representatives by direct election, and 175 counties, 3 province-subordinated cities and 2 national autonomous prefectures have established people's governments. This is extremely important for guaranteeing implementation of the party's line and policies and strengthening leadership of economic work. In flood and earthquake areas, timely measures have been taken and the people in the areas have been actively organized for self-help through production, the masses' morale has been rapidly stabilized and production has recovered. The civil government departments have engaged actively and effectively in special care for the families of revolutionary martyrs and servicemen, social relief, placement of returning servicemen and the like. The public security and judicial departments have gradually put their organizations in order and increased their strength, and have played an important role in restoring law and order, striking back at criminal activity, maintaining social order, protecting the people's interests and defending socialist construction.

F. Implementing the Party's Nationalities Policy

In accordance with the Central Committee's general policy on nationalities work and in the spirit of the three-prefecture work conference convened by the provincial party committee, reeducation on the nationalities policy has been pursued and implementation of the nationalities' rights of autonomy has been guaranteed. A program for a standard Yi written language has been issued. A group of minority cadres has been nurtured and selected, and nationality cadres now number 55 percent of leadership groups at the prefecture and county levels. Production policy has been adjusted and economic policy relaxed so as to lighten the nationalities' burden. The financial system of "separating revenue from expenditures, making work commitments at each level" has been implemented. Procurement of special local forestry and livestock products has been improved, and the production and supply of commodities specially needed by the nationalities has been energetically organized. Stock raising-industrial-commercial integrated enterprises have been experimented with. The economy and cultural services in nationality areas have recovered and developed rather rapidly, the people's livelihood has been improved to varying degrees, and solidarity of nationalities has been strengthened.

As we look back over the new achievements of the year's work in the various areas, we must be clearly aware that we are still facing grave difficulties and problems. There are still basic distortions involved in the proportional imbalances of the national economy, energy supplies are extremely short, the scale of capital construction is still too large, the money supply is excessive, some commodity prices are rising, and so on. In essence, these problems have resulted from the influence of "left" errors in economic work over many years. They are also associated with an inadequate overall balance in planning and leadership and with incorrect or untimely implementation of certain policies. We should continue to summarize the lessons of experience, set straight our thinking regarding the guidance of economic work and strive to complete all tasks successfully and develop the excellent situation.

2. Directions of Work and Main Tasks for 1981

This year the directions for government work and the main tasks are: to mobilize and organize the people of all nationalities in the province to implement with one heart and one mind the major policies of further rectification in economics and increased stability in politics put forward by the party Central Committee, to make a vigorous effort in readjustment, to stabilize the economy, to put the people's livelihood in good order, and to consolidate and develop the political situation of stability and unity.

The basis for carrying out this year's heavy and arduous tasks is to root out the erroneous influence of the "left." Leadership at all levels must conscientiously summarize its experience, eliminate such "left" ideas as deviation from objective laws, divorcement from reality, impatience for quick results, and rash pressing forward, must resolutely seek the truth from the actual situation, base our actions on real circumstances, stir up the revolutionary spirit; and all tasks which can be accomplished through effort must be resolutely accomplished.

A. Further Implement the Policy of Readjustment, and Persist in Reform Within Readjustment

The further readjustment of the national economy proposed by the party Central Committee is a sober, healthy type of readjustment. Readjustment has its ups and downs, its advances and withdrawals, but the ultimate aim is to advance more effectively. Decreasing the scale of capital construction, decreasing outlays in all areas are extremely important for balancing revenues and outlays, stabilizing the economy and eliminating the dangers latent in the excellent situation, and we must resolutely implement them. For Sichuan, readjustment chiefly means increasing production. We must increase agricultural production and light industrial and textile production, and in addition we must expand the output of heavy industrial products required for energy production and for the light industry market. Only in this way can we achieve a balance between revenues and outlays this year and assure essential stability of market prices. We must persevere in this spirit and energetically pursue readjustment to stimulate production. If we do not work conscientiously on readjustment, output will not increase, and if output is not increased it will be hard for the readjustment to make progress.

In essence, readjustment of the national economy requires solution of the problem of proportional imbalances in it, rationalization of the economic structure, rationalization of the management system, rationalization of enterprise organization, and improved economic performance. The key to readjusting the economic structure is to accelerate the development of light industry and textiles and energetically increase the output of consumer goods, and not merely to make a success of the production of key products but also to work hard on the production of other products needed by the people. The heavy industries must adjust their product orientation in terms of the needs of consumer goods production. The electronics industry must produce more television sets, radios and the like; the machine building and defense industry enterprises must energetically produce electrical and mechanical products for daily use, and in addition provide equipment and parts and assemblies for technical modernization of light and textile industry. The metallurgical and chemical industries must provide more and better starting materials for the production of consumer products.

To increase the output of daily use consumer products, we must focus on enterprises which produce superior-quality brands, use the key urban centers as a base, break down the boundaries between industries, areas, ownership systems and military and civilian production, organize integration and cooperation, and implement socialized production. Enterprise integration and reorganization requires both persistent voluntary mutual assistance and implementation of the necessary administrative intervention; the establishment of economic integration from the bottom up must be coordinated with the establishment of industrial organization from the top down in a phased and gradual manner. Enterprise technical modernization must be based on integration and reorganization and blind activity minimized. Enterprise integration and reorganization must be coordinated with closing, suspension, merger and conversion, and these enterprises' plant and technical contingents must be thoroughly utilized, there must not be duplication in construction, and merging and conversion should predominate over suspension and closing.

Readjustment and reform are interdependent and mutually supporting. At the moment, readjustment is the central focus and reform must be subordinate to it and foster it. Reforms which are beneficial to readjustment and to invigorating the economy must be resolutely seen through, and reforms for which the conditions are unfavorable must be suitably slowed. Experiments in increased autonomy for industrial and commercial enterprises in this province which are correctly oriented and are producing good results should be continued. The original methods of increasing autonomy should not be altered, but experience should be summarized and the situation consolidated and improved. With the exception of the comprehensive implementation of "taxes in place of interest, independent accounting and responsibility for profit and loss" authorized by the State Council for all of Chongqing's light industry and instrument making industry, the area in which expanded autonomy is applied should not be increased. Factories and mines in which autonomy has not been increased should continue to follow the enterprise fund system or various methods involving work targets and either small profits or losses. We must handle correctly and intensify the relationship between centralization and stimulation of enterprises, and successful economic policies, methods and organizations must be continued. We should continue market regulation under the guidance of the state plan, and provided that production and circulation are enlivened, such methods as economic levers, economic regulations and economic oversight may be used to assure that microeconomic activity is in accord with the requirements of macroscopic policy.

B. Further Implement the Agricultural Economic Policy and Reap an All-Round Bumper Harvest This Year

In order to make a success of economic readjustment, we must first do everything possible to increase agricultural output. We must strive to achieve an increase of 1.5 to 2 billion jin in grain output for the province and an increase of 4 percent in total agricultural output value, so that the income of collectives and commune will continue to grow.

We must conscientiously practice the spirit of the report issued by the party Central Committee to the State Agricultural Committee regarding active development of pluralistic operations in the countryside, we must implement the policy of absolutely persisting in grain production and actively expanding pluralistic operations, we must continue systematic and gradual readjustment of agricultural structure, so that grain crops and cash crops, and agriculture, forestry, stock raising, sideline industry and fisheries will develop in coordinated fashion, we must establish excellent relationships between large-scale agriculture and the environment, and we must reap the benefits of integrated development. We must pay due attention to rational utilization of all land, we must develop all resources in terms of specific local conditions, and we must energetically develop the commodity economy. This year we must increase the output of such cash crops as cotton, sugar cane and flue-cured tobacco and provide more raw materials for light industry and textiles. We must implement the decisions of the Central Committee and the State Council regarding certain problems in the protection of forests and the development of the forestry industry, must give forestry a high priority, and must effectively implement the forest rights and responsibilities. While steadily developing pig raising we must energetically develop the raising

of such livestock as cattle, sheep and rabbits. The development of aquatic products production must be given serious attention. We should encourage commune members to actively expand family sideline occupations. Commune and brigade enterprises must be rationally disposed and must develop stably and healthily in the context of readjustment and rectification. Experiments with agricultural-industrial-commercial, forestry-industrial-commercial and stock raising-industrial-commercial integrated enterprises which have already begun should continue to be effectively pursued.

To develop agriculture we must rely primarily on policies and on science and use the policies to mobilize the enthusiasm of the masses; we must protect the land, practice intensive cultivation, increase yield per unit area and increase the economic benefits. We must approach the further strengthening and improvement of the agricultural production responsibility system as an important matter and make a success of various forms of production responsibility systems in different areas and communes or brigades. The entire province falls into three major kinds of area, and three main forms should be adopted for them: in areas in which the collective economy is relatively well consolidated and the level of production is relatively high, the work groups in the main fields should be given specific assignments and compensation should be figured in terms of output, and the "four specializations and one guarantee" should be applied to pluralistic operations and to industrial and sideline occupations; in areas which have long been poor and backward, a free hand should be given, subject to proper leadership, in implementing output or work assignments down to the household level; and in the bulk of the land which falls in the middle category, contracting production for each laborer should be implemented. Whichever responsibility system is most suitable should be instituted in each locality according to the specific circumstances and on the basis of differentiated guidance; the production team's autonomy and the opinion of the majority of the masses must be fully respected, and a single model or approach must not be applied in all cases. Government at various levels must intensify its leadership, organize its forces, make thorough investigations, summarize experience, guide action skillfully according to circumstances, and help the communes and brigades solve their specific problems.

The production responsibility system of "contracting production" which was implemented on a trial basis by some localitites in our province last year, and in which an economic method is used to popularize science and technology, has been a success and must be further improved and actively expanded from single points to larger areas. The agricultural production responsibility system, technical dissemination, the "linking production" system and the job responsibility system must be closely coordinated with each other, and traditional intensive cropping and modern agricultural techniques must be combined so as to increase the level of scientific cultivation and stimulate the development of agricultural production.

At present we must concentrate our strength and carry out the major spring production work effectively and well. We must instill an attitude of resisting natural disasters and reaping bumper harvests, and make timely material preparations for the work of resisting summer drought, late-summer drought and other natural

catastrophies. All industries must voluntarily support agriculture and make the proper contribution to reaping an all-round bumper harvest this year.

C. Strive For Increased Output and Conservation, Improve Economic Results

This year total industrial output provincewide must be increased by 3 percent over last year, and the output value of light industry and textiles must be increased by 10 percent or more; we must assure that this task is accomplished and strive to surpass this level. The industrial departments must make increased production of large-lot daily-use consumer items, satisfaction of the people's daily needs and increased financial revenues an important task in increasing production and conservation and increasing revenues and conserving outlays. We must continue to implement the principle of the "six priorities" and actively increase production of good-quality new varieties and colors and inexpensive light industrial and textile products with good markets. In particular, the output of such important products, urgently needed by the urban and rural people, as bicycles, sewing machines, wristwatches, radios and televisions must be greatly increased. We must make sure that the agricultural raw materials needed by light industry and textiles are allocated according to plan, and Chongqing, Chengdu and other cities in which light industry and the textile are relatively concentrated, as well as some critical enterprises, must be given priority in this respect. At the same time, we must strive to increase the share of industrially produced starting materials, raising it from last year's 20 percent to about 30 percent. The communications departments must strengthen road and waterway maintenance so as to assure free passage of vehicles and boats, conserve on energy consumption and organize rational transport.

The key matter in developing industrial output is not reliance on increased capital construction and more new buildings, but rather reliance on existing enterprises and thorough utilization of existing potential, careful calculation and strict budgeting in all areas, increased production and conservation, and energetic improvement of economic results. We must make the greatest effort to rectify existing enterprises and manage them effectively, especially the more than 6,000 state-run industrial enterprises. Enterprise rectification must begin with effective establishment of leadership groups, establishment and effective use of a strict responsibility system, implementation of the principle of distribution according to work, strengthening of enterprise management, effective primary record keeping and quota-oriented management, implementation of economic accounting, strict labor discipline and the establishment of normal production procedures. We must establish and keep in good order a system of employee representative councils and gradually improve democratic management of the enterprise. We must conscientiously learn from Shanghai's advanced production technology and enterprise management experience and closely connect learning from Shanghai with summarizing and disseminating the advanced experience of local enterprises, so that all economic and technical indicators will reach or surpass record values for the industries in question as rapidly as possible, and we must strive to overtake advanced levels of the same industries in Shanghai.

The extreme energy shortage in this province is a principal contradiction in economic readjustment. To solve the energy problem we must persistently adhere

to the policy of stressing both resource development and conservation, giving conservation priority in the short term. At present we must make efforts in three areas. The first is energy production and construction, and coal in particular, which accounts for more than 70 percent of the energy used in the province, must be given first place in energy production. We must be successful in technological modernization of existing mines, must readjust the proportional imbalances in extraction, must make a major effort in coal mine construction and must energetically increase coal output. The electric power industry must strive to get its construction projects into operation at an early date, must see to it that it has full sets of equipment, and must actively develop small scale rural hydroelectric power. We must make a major effort in natural gas exploration and drilling and the laying of pipelines, and must accomplish the task of increasing reserves by 4 billion cubic meters. The second task is a major effort in energy conservation, adherence to the principle of economically rational distribution and selective supply and strengthen energy use management. All enterprises must establish targets for decreasing energy consumption, and enterprises with high consumption and large amounts of waste must be assigned rectification deadlines. In particular, natural gas use management must strictly segregate gas for production use from gas for domestic use and take measures to stop waste. The third area involves a major effort in technical modernization focused on conservation, continuing modernization of gas-burning boilers, diversion of fuel gas to use as a raw materials, and the bringing into play of economic benefits. We must continue actively developing methane in the countryside, and urban areas which are in a position to do so should gradually expand its use in coordination with urban construction.

We must energetically increase production and engage in conservation, effectively increase revenues and decrease outlays, assure that the figure of 3.5 billion yuan in financial revenues will be achieved and strive to surpass it, avoid deviations from financial expenditure plans, and bring revenues and outlays into balance. All industrial enterprises must strive to increase output, expand their operations, decrease production costs, and decrease circulation expenditures. Public operating expenditures included in enterprise management outlays must be decreased 20 percent from last year's figure. All enterprises that have posted losses must strive energetically to show a profit, and operating losses in particular must be turned around by a specific deadline; no subsidies will be paid for those which go over the deadline. All departments and units must decrease expenditures in all areas, enforce strict conservation in all activities so as to decrease expenditures, and strive to increase the results of utilization of funds. Strict financial and economic discipline must be instituted, unauthorized holding up and diversion of funds and delay in payment of taxes must be resolutely ended, and excessive payment of bonuses and in-kind payments must be strictly stopped; unauthorized apportioning of operating costs and expenses will not be permitted and extravagance and waste must be opposed.

In the context of increasing production and practicing conservation, we must conscientiously make a success of production safety and continuously improve working conditions and avoid accidents, public security disorders and the like,

and actively guard against occupational illness. We must resolutely implement the State Council's decision regarding the strengthening of environmental protection work, compel enterprises which pollute seriously with the three wastes to control pollution by a fixed deadline, and solve the pollution problems of Chengdu and Chongqing and the Tojiang River basin, gradually and with specific focus.

D. Strive to Improve the Lives of the Rural People

While carrying out readjustment and stabilizing the economy, we must continue to implement the State Council document "Notice on Strict Control of Prices and Recification of Negotiated Prices" and maintain market prices essentially stable. In particular, the prices of daily-use items and necessities, which account for about 70 percent of expenditures by the masses, must be subject to strict control. We must further rectify the list of products subject to negotiated prices, their extent, and the range of price increases. We must rely on and mobilize the masses, strengthen market management, and strike back at speculation and profiteering, and resolutely put a stop to unreasonable price increases, excessive use of negotiated prices, and hidden price increases.

We must continue to invigorate the markets and further open up product circulation channels, develop a commercial network with a variety of economic components based on state-run commerce, persistently implement flexible, mixed types of economic operations, actively expand commodity purchase and sales, and do everything possible to satisfy the people's growing consumer needs. In order to adapt to the new conditions, in which the production responsibility system is being implemented in the countryside, we must conscientiously improve rural commercial work, promote the contract purchase system for agricultural and sideline products, actively organize movement of industrial products to the countryside, give proper attention to increasing the commodity supply in areas which have increased in wealth, and listen to the peasants' urgent requests for improvement of their livelihood.

We must continue to find work for the urban unemployed and strive vigorously to meet this year's assignment of placing 250,000 to 300,000 persons provincewide. The main approach to job placement is through various forms of the collective and individual economy. We must develop labor-intensive collective handicraft industries and commercial and service industries, and suitably expand individually-run repair services and clothing reconditioning, food, family handicraft and fresh products industries and the like. Government organizations at all levels must draw up plans for developing the collective and individual economies on the basis of the requirements of national economic readjustment and the actual needs of the localities in question, must solve the problems encountered during their development, must provide support in accordance with policy and must open routes to employment for the urban unemployed.

In accordance with financial and material capabilities and on the basis of development of production, the state will gradually increase its hiring of workers, especially middle and elementary school teachers and certain other trades. Municipal public services will continue to develop to some extent.

This year an effort is being made to construct 4 million square meters of housing. Some enterprises which have excess funds after completing their plan for purchasing treasury bonds may arrange for some to be used in repairing employee quarters and other collective welfare projects. We must help the countryside to plan successfully for housing construction and economize on land for housing construction, actively develop the supply of building materials and supply those needed for rural housing construction.

E. Actively Develop Science and Cultural Services and Continue to Make a Success of Birth Control

Science, education, culture, public health and physical education services should develop steadily following rectification and improvement. Scientific and technical work must first stimulate the development of the national economy, for this is the only correct policy. We must concentrate our main forces on such research projects as those dealing with agriculture, light industry and textiles, energy and raw materials. We should successfully reform the scientific and technical management system, strengthen relationships between scientific research departments and production units, enter into various economic contracts, including economic contracts for compensation according to output, and carry out technical popularization and technical services. We must advocate scientific research in the plants and strengthen our technical reserve. Educational work must continue to implement the policy of moral, intellectual and physical development, must strengthen political and ideological education, and must strive to improve the quality of teaching. Advanced education must not only make a success of full-time regular courses and specialized courses, but must also strive to conduct effective correspondence and television education. We must steadily carry out the reform of intermediate education, make a success of vocational intermediate education and specialized middle schools and operate trade schools of various types. We must run successful normal academies and improve the level of teaching materials. We must make a conscientious, energetic effort to refurbish middle and elementary schools and build new ones. We must continue to eliminate illiteracy and extend elementary education. We must accord sufficient importance to developing nurseries and kindergartens and strengthening kindergarten education.

Employee education is an important way of developing intellectual abilities and training qualified people and a reliable guarantee of continued development of the national economy; it is intimately connected with the success or failure of modernization and construction. Leadership at all levels and factory and mining enterprises and service units must accord full importance to employee training. They must hold various types of employee schools, training classes, and research courses, and make thorough use of such teaching methods as television, broadcasting and correspondence courses, run spare-time or on-leave training for employees, and improve their technical and job qualifications. Stringent examinations must be given and study results should be made an important basis for hiring, selection and promotion. Enterprises which have been closed, suspended, merged or converted and units which are not fulfilling all their tasks should take even greater advantage of the opportunity to organize their employees for cultural and technical study and the study of political theory.

We must strengthen social education and give particular stress to the education of adolescents. We must conduct education in the four basic principles, in patriotism and national integrity, in collectivism and arduous struggle, and must extensively and thoroughly develop the "five stresses and four beautifications" movement and vigorously build up a socialist spirit and socialist enlightenment.

We must actively develop literature and art, make artistic and literary creation flourish, develop mass artistic and literary activity, create numerous good-quality spiritual products, enrich the people's cultural life, train and confirm good morality and habits, and stimulate the people to devote themselves to the cause of construction for the four modernizations. Public health work should keep to the policy of putting prevention first, develop a patriotic public health movement, make a success of hospital management, continuously improve the level of medical technology, and serve rural medical and health work and the protection of the masses' health.

We must continue energetic and effective birth control work. This year we are requested to hold the natural rate of population growth to 9 per thousand or less. This is by no means an easy matter when the number of people of marriageable age and the number of women of childbearing age is increasing, but we must not slacken our efforts in the slightest. We must strengthen leadership, carry on successful ideological and educational work, and vigorously advocate late marriage and late childbearing and the bearing of only one child per couple.

F. Continue to Develop Socialist Democracy and Put the Socialist Legal System into Good Order

In the wake of reform of the state political and economic systems, we must gradually put the democratic system into good order and perfect it, accord the masses more democratic rights of greater scope, and especially protect the masses' basic right to manage the state and economic affairs. At the same time, we must further improve the condition of the socialist legal system, protect the rights of the widest range of the people, and protect the political situation of stability and unity. We must continue to implement the Penal Code and the Law on Criminal Complaints and gradually develop various necessary rules and regulations on the basis of state guidelines. We must continue to strengthen the ranks of public security and judicial personnel. We must gradually establish an organizational mechanism for public security organs, procuratorial organs and people's courts for forest areas on the basis of the decisions by the CPC Central Committee and the State Council regarding certain problems of forest protection and the development of forestry. We must carry out extensive education on the legal system and organize all relevant forces for successful "comprehensive administration" and close management of public security, and we must strengthen our vigilance over security matters and protect normal social, production, work, teaching, science and domestic order. We must rely on and mobilize the masses, utilize the two weapons of democracy and the law, distinguish antagonistic contradictions from contradictions within the people, and resolutely and correctly wage a struggle against counterrevolutionary elements and various criminal elements, assuring obedience to the law, strict

execution of the law, punishment of transgressions, dealing blows to enemies, and punishment of criminals.

We must make a success of caring for disabled servicemen and revolutionary martyrs and their families, successfully place servicemen transferred to civilian work or leaving the ranks, and do effective social relief work.

G. Accelerate Economic and Cultural Development in Nationality Districts

We must further implement the Central Committee's directives regarding nationality work and the spirit of the provincial party committee's three-prefecture work conference, strengthen work with minorities in regions where they live in scattered locations, and accelerate the pace of economic and cultural construction in nationality districts. We must continue to conduct thorough propaganda and education regarding the nationalities policy, investigate the implementation of the nationalities policy, protect the equality and economic interests of minorities, and effectively guarantee the autonomy of nationality districts in terms of policy, the political system, and law. We must vigorously nurture and select minority cadres and gradually implement self-rule by autonomous nationalities. We must respect the spoken and written languages, customs and religious beliefs of national minorities. Based on actual conditions, we must carry out the policy of according primacy to forestry and stock raising and comprehensively develop agriculture, forestry, stock raising, sideline occupations and fisheries; we must rely on the masses, make a success of forestry development and scientific stock raising, and do effective work in communications, small scale hydroelectric power and industrial development. We must develop education, culture, health, physical education and science and technology in the minority areas.

3. Bring the Functions of Government Organizations at All Levels Thoroughly Into Play

Local People's Governments at all levels are the executive organs of the People's Congresses at all levels and of the local state administrative organs at all levels. Under the leadership of the party, and in accordance with the jurisdictions established by law, we must bring their various functions into play, and organize the management of local administrative, economic and cultural work. Based on the principles of "conciseness and simplicity, effectiveness, centralization economy and opposition to bureaucratism," we must lay stress on successful work in the following areas:

A. Strengthening centralization. Success in economic readjustment requires the institution of a high level of centralization. Government organizations at all levels must persistently comply with the unified leadership and direction of the Central Committee and the State Council and must persist in implementing general and specific policies and major measures for readjustment, consciously make allowances for and actively shoulder the country's difficulties, and see to it that the particular interests are subordinated to overall interests and short-term interests to long-term interests. All localities, departments and units must, on the principle of persisting in centralization, continue to develop activism and initiativ[illegible] the work on all fronts better, and increase output.

B. Strengthening ideological and political work. At present, the focus of ideological and political work is extensive education on holding to the four basic principles. The essence of holding to the four basic principles is adherence to party leadership. While we lay due stress on eliminating "left" influences, we must not neglect rightist and other erroneous ideologies. We must carry our clear-cut criticism and education and even conduct necessary struggles in dealing with the erroneous idea of opposing the four basic principles which a few people in society hold, in dealing with any tendencies toward weakening, avoiding, eliminating or opposing party leadership, and in dealing with bourgeois tendencies toward liberalization, anarchy or extreme individualism and the like, and must not let them spread unchecked. We must vigorously propagandize communist ideology and morality, set progressive persons up as an example, and further stimulate the revolutionary spirit. In a period of revolutionary struggle, and amid the socialist revolution and the construction of socialism, a revolutionary spirit among the cadres and masses, a spirit of strict adherence to discipline and self sacrifice, a spirit of selflessness, a spirit of overcoming all enemies and all difficulties, a spirit of determined revolutionary optimism and of winning victory against a thousand difficulties, is a great spiritual treasure of the people of this country and a component of communist ideology and morality. It is this spirit which stirred up our people and created our great strength. In the context of economic readjustment, the four modernizations, and construction, we must develop this revolutionary spirit even more vigorously. Government organizations at all levels and all departments and units must raise their consciousness and combine a strengthening of ideological and political work with an adherence to the principle of material benefits, conduct profound and painstaking ideological education regarding the specific ideas involved in economic readjustment and reform, and devote effort to investigating the characteristics and laws of ideological and political work in the new period.

C. Further improving work style and methods. Leadership cadres at all levels must involve themselves intimately with the masses, discuss all problems that arise with the masses, concern themselves with their sufferings, and do everything possible to help the masses solve the real problems of production, work and livelihood. They must resolve to escape from the sphere of meetings and documents and go down to the basic level and into the masses, investigate and survey, develop positive factors, understand new circumstances, study new problems, summarize new experience, and disseminate it; they must conscientiously improve work methods that are based on stereotyped formulas and generalities and overcome a subjectivist, bureaucratic work style. They must accept the oversight of the People's Congress, its standing committee and its delegates, and accord the proper importance to letters and visits from the people.

D. We must establish various job responsibility systems and keep them in good working order. All departments and units must apply the job responsibility system to all of their cadres and clearly specify the scope, jurisdiction and responsibilities of each position; every assignment must be spelled out down to the individuals' tasks and be in the charge of personnel specifically dedicated to it; they must establish and perfect the requisite systems for investigation and rewards and penalties, strengthen the sense of revolutionary responsibility

and of the cause in all personnel, develop initiative and activism, overcome such bad work styles as foot-dragging, buck-passing and avoidance of responsibility, and strive to improve work effectiveness and quality.

E. Strengthening the development of key cadres and groups. We must gradually make the age composition of the various leaderships younger, and increase their specialization and level of knowledge. We must effectively bring the key leadership element represented by older comrades into play; older comrades should actively take on the task of choosing able and upright young and middle-aged cadres. Leadership groups must adhere to collective leadership and division of labor and responsibility, and major problems must be opened to collective discussion so that everyone can express his opinion fully before decisions are made, rather than following the opinion of one individual; all members of the leadership must know and take account of the overall situation, support each other and unite effectively. Various forms of planned, systematic nurturing of key cadres must be used so as to improve their ideological consciousness and their ability.

Delegates, we are now in a great period of change and are shouldering the great historical task of building a modern, highly democratic, highly civilized, powerful socialist country. The future is extremely bright, but the tasks are extremely arduous. Even though there are many difficulties in the path ahead, we are sure that they can all be overcome by effort. On the basis of Marxism-Leninism and Mao Zedong Thought, and under the leadership of the party Central Committee and the State Council, we must unwaveringly implement the party line and general and specific policy, strengthen our unity, make a great effort to accomplish all of our province's tasks for 1981, wage a common struggle for further readjustment of the economy and further stability of government, and make our Sichuan contribute further to the great cause of building a strong socialist country.

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SEVERAL PROBLEMS CONCERNING REDUCING PROPORTION OF FLOATING CAPITAL

Beijing ZHONGGUO JINRONG [CHINA'S FINANCE] No 3, 1981 pp 18-20

[Article by Gan Tieya (3927 6993 1509) and Li Fuchen (2621 4395 5256) of the State Planning Commission: "Several Problems Concerning Reducing the Proportion of floating capital"]

[Text] It is well known that there is a great deal of encroachment of floating capital among industrial and commercial enterprises and that its circulation is slow, it is of little effectiveness and has great latent capacity. In recent years, there have been demands every year to suppress floating capital. When this has been done, very little effect has been seen. This far from fits the form and demands of our current economic readjustment. We shall now present a number of rough views on various problems associated with the current existence of floating capital encroachment in enterprises.

The Circumstances of the Current Floating Capital Encroachment Among Enterprises

There has been a turn for the better in floating capital encroachment in recent years because of reform of the economic system, the expansion of the right to autonomy by enterprises, further arousal of the enthusiasm of enterprises and of their staffs and workers, strengthening of economic accounting by responsible authorities at all levels and by enterprises, striving for economic effectiveness and continual elevation in the standard of the business management of enterprises. In 1980, the proportion of output value per 100 yuan among industrial enterprises accounted for by floating capital was decreased by 3.1 percent as compared to 1979 and was decreased by 7.7% as compared to 1978. The proportion of turnover per 100 yuan among commercial enterprises accounted for by floating capital decreased by 9.1 percent as compared to 1979 and decreased by 12.3 percent as compared to 1978. However, as compared to 1965, there was an increase in the proportion among industrial enterprises of 10.3 percent. There was also an increase among commercial enterprises. The total amount accounted for by floating capital has also increased from year to year. In 1980, the total amount of floating capital encroachment among state-managed enterprises had increased by 14.5 percent as compared to 1978 and had increased by 254.3 percent as compared to 1965. Of these amounts, there was an increase of 9.2 percent as compared to 1978 and there was an increase of 261.6 percent as compared to 1965 in industrial enterprises (including production enterprises and materials marketing enterprises).

In commercial enterprises (including commerce, marketing, food and foreign trade), there was an increase of 21% as compared to 1978 and there was an increase of 219.1% as compared to 1965. In communications enterprises (including communications, railroads, posts and telecommunications and civil aviation), there was an increase of 30.5% as compared to 1978 and an increase of 339.9% as compared to 1965.

The latent capacity of floating capital is distributed primarily as follows.

In industrial enterprises, there was an excess of encroached capital of more than 200 billion yuan as compared to 1965, most of which was encroached on finished product and reserve links. For the past several years, the problem of overstocking of finished products has been especially pronounced. For example, in Hebei Province from 1972 to 1968, the increases in reserve capital each year amounted to 60 to 80 percent of the total amount of the increases in floating capital in industrial enterprises. In 1979, the increase was 12 percent. In the past, finished goods capital accounted for about 10 percent of the total amount of increase. In 1979, there was an increase in a single jump to 80%, while in the last half of 1980 there was an increase to 90 percent.

In commercial enterprises, on the basis of statistics from the commercial, marketing and foreign trade sectors, inactive, stagnant goods accounted for more than 120 billion yuan of depressed capital, with the pressure being primarily on the wholesale links. For example, more than 80 percent of commercial departments are concentrated in first, second and third level wholesale stations, while only 15 percent of goods are at basic level stores.

In the materials enterprises, materials that have been overstocked for long periods amount to 30 billion yuan. Materials in various central departments and bureaus are primarily concentrated in materials administrative offices in large regions. Local concentrations of materials are found at first level local and municipal materials sectors.

The above three items account for up to 300 to 400 billion yuan and also account for about 10 to 13 percent of the total amount of encroached floating capital. Thus, there is a considerable latent power.

Causes of the High Encroachment of Floating Capital

There are continual increases in the total amount of encroachment of floating capital in enterprises. In addition to such normal factors as expansion of production, expansion in circulation of goods, increases in the purchase prices of farm goods and sideline products and relative increases in the value of inventories, there have also been some increases that have not been rational. Capital is the monetary reflection of materials. Thus, increase in capital encroachment is actually increase in materials. The problem lies in what kinds of materials are increased. From surveys it can be seen that there has been no solution for a long period of the problem of massive increases in overstocked materials in many regions and sectors over the past several years. On the basis of statistics on 105 machinery enterprises in 8 cities including Beijing, Tianjin and Shanghai,

more than 50 million yuan worth of problem goods were handled in the first half of 1980. However, during that same period, the value of newly produced overstocked goods that were unsaleable amounted to 1.3 billion yuan. There was not only no decrease in finished goods in inventory but rather an increase of 23 percents as compared to the beginning of the year. Inventory from January to June 1980 in the Shandong Province Foreign Trade Bureau increased by 1.6 billion yuan. There was an increase in problem goods of 1.7 billion yuan. Thus, there was a decrease in goods suited to sale and an increase in problem materials.

Because the structure of inventories is not rational, there is an increase in the total amount of floating capital encroachment. The principal causes that brought about these circumstances are as follows. The first is dislocation between production arrangements and social demand. Some responsible sectors and enterprises unilaterally stress increase in speed in a blind pursuit of production volume and value of production while neglecting quality. This is one of the major factors leading to overstocking of materials and slowing of capital circulation. In the past several years there has been a comparatively great overstocking of machine and electrical products throughout the nation as a whole. Nevertheless, there were still some leadership departments that called for outout value and profit in the machine industry in 1980 not to be below the levels of the previous year, with the results that new overstocking was created. According to calculations by the concerned departments, by the end of June 1980, the value of overstocked machine and electrical goods was about 200 billion yuan, or about 32.3 percent of the total amount of inventories. It was necessary to write off 30 billion to 60 billion yuan as worthless. Another example is that of blind production of large amounts of agricultural machinery of inferior quality and high price for the purpose of realizing mechanization of agriculture. By late July 1980, materials in inventory in agricultural machinery company systems throughout the nation as a whole that were not fit for sale and that had to be written off as worthless accounted for 42.5 percent of inventories.

The second is that there are many circulation links with duplication of inventories, dispersion of materials and suppression of capital. At present, the materials and commercial departments are still establishing wholesale organs on the basis of administrative districts so that first level wholesale organs have been established by first level administrative organs, with increases in the numbers of circulation links. For example, there were only 870 second level purchase supply stations for industrial goods in the system of commercial departments in 1965. By 1979, there had been an increase to 1063. Because of the increase in second level stations, the amount of encroached capital increased from 15 billion to 20 billion yuan. Because of the large number of links, there was a slowing of the circulation of goods and overstocking of materials. Up to the end of September 1980, the percentage of unsaleable and deteriorated goods among metals, communications electrical and chemical commercial and industrial inventories at wholesale units if the commercial departments systems amounted to about 30 percent. The value of inactive and unsaleable goods in the supply and marketing cooperatives system was about 7.5 percent of the total value of inventories.

The third is the high price of imported goods which cannot be sold and create overstocking. There are some consumer goods that have become unsaleable goods because of their high prices even though they are in great demand. In 1980, 314 thousand type 135 cameras of 9 specifications were imported from Japan, with 170 thousand being allocated to stations in Shanghai and 144 thousand to stations in Tianjin. In August, they were put onto the market in succession at a maximum selling price of 800 yuan and at a minimum selling price of 170 yuan, prices more than three times greater than similar type of cameras produced in China. Many young shoppers felt that it was not worthwhile to spend four month's wages simply to buy the cheapest of these cameras. As the result, they did a great deal of looking but little buying.

The fourth is that the handling and utilization of overstocked materials was not linked with the interests of the enterprises and their staffs and was also a factor affecting the circulation of materials. At present, treatment and utilization of overstocked materials is still carried out by administrative measures, with economic methods being used very infrequently. That is, there are many general appeals but few concrete measures. The material interests of enterprises and their staffs are not directly related to the magnitude of materials in inventory or to whether "profits from inventories" are good or bad. Therefore, no very good solution has been achieved to the problem of blind purchasing and of the idea that nothing can go wrong if there are reserves. Thus, inventories of materials have continually increased and and the rate of progress in handling overstocked materials has been slow. Every year since 1973 there has been a call for "profits from inventories" and every year there have been increases in inventories.

How to Hold Down Floating Capital Encroachment

The key in how to hold down floating capital encroachment lies in conscientiously and thoroughly implementing the policies of readjustment, reform, reorganization and improvement. This year, there was a comparatively great retrenchment in investment in basic construction. This required the withdrawal of a large amount of currency from circulation and has been a condition beneficial to decreasing materials inventories. However, it should be noted that a great deal of equipment has already been prepared and put into production. Since basic construction has been abandoned and cannot be sold, there is a tendency for continued increases in machine and electrical products. This has also been an unfavorable factor as far as retrenchment in capital encroachment is concerned. We must make a strong resolve and exert a great deal of energy to adopt practical and effective measures to alter these circumstances.

1. We must adopt a method of uniform, controlled planning in which production is allocated, in which production is changed and in which distribution is from above to below in a practical way and on the basis of social demand. Except for key state goods, the production assignments of production enterprises should be set on the basis of sales plans, the materials and commercial departments should liquidate the controlled purchase and exclusive sales system on the basis of contract purchases and production of machine and electrical products should be geared to the markets, geared to the rural areas and geared to export. All

industrial enterprises must strive to raise the quality of their products, to increase the varieties of their products, to be rigorous in observing contracts and to be resolute in overcoming the tendency to blind pursuit if output value and output.

2. The management system should be reformed and there should be a decrease in intermediate links. Commercial and materials marketing organs should be set up on the basis of economic regions and of the laws of commodity circulation and unessential intermediate links should be cut out. Wholesale stations and retail stores should be allowed to make purchases and sales outside their own regions and stocks can also be replenished directly from the factory in order to destroy the separatist feudal mode of doing business in which sales are restricted to given regions, with firm lines of demarcation being drawn, as well as to accelerate the circulation of goods.

3. Domestic materials should be thoroughly utilized and there should be strict controls on imports. There must be a conscientious intensification of the work of inspecting imported materials and introduction of outside equipment in order to prevent blind importing. Products and equipment that can be produced domestically should be allocated for domestic production to the greatest extent possible. Suitable arrangements should be made to import that portion for which there is definitely a shortage on the basis of possibility of foreign exchange.

4. Control of loans should be strengthened and capital should be supplied firmly on a planned basis. In particular, strong controls should be exercised in regard to the current excess of market notes. In granting loans, banks should thoroughly implement the three principles of choosing good support credit (having a plan, having a guarantee of materials and repayment on schedule). A rigorous investigation should be made on the basis of the credit plans of an enterprise, its sales contracts for a product and its management. Industrial loans should be drawn up gradually and the loan should be examined. Commercial loans should also be instituted gradually as conditions are created. The interest on loans for materials that have been overstocked due to blind production and blind purchase by enterprises and for goods that materials departments and commercial departments have had on inventory for a long time and have not sold should be increased and the loans should be cleared within a set period in accordance with their provisions. Banks have the right to terminate loans for overstocked materials that an enterprise can handle but that it has not dealt with actively. In serious circumstances, they must also recall the original loan.

5. Materials for which there is excess overstocking should be actively utilized in order to eliminate the "false fat" of floating capital. Sales of materials and goods that are overstocked should be promoted by such varied means as expanding sales markets, modifying processing systems, holding sales and cutting prices. In the case of materials for which there is definitely no use value and when there are accounts for which there are no articles and after rigorous investigation and with the approval of the relevant departments, cancellation may be effected with verification and recompensation made for losses in order to force down floating capital and light the burdens on the enterprise. This will facilitate a true reflection of the state of circulation of floating capital on the part of the enterprise and will be beneficial in strengthening management.

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CONTROLLING ISSUANCE OF CURRENCY TO STABILIZE MONEY PRICES

Beijing ZHONGGUO JINRONG [CHINA'S FINANCE] No 3, 1981 pp 20-21

[Article by Lin Jiken (2651 4949 5146) of Liaoning Finance and Economics Institute: "Controlling Issuance of Currency to Stabilize Money Prices"]

[Text] There is an inherent close relationship between readjusting the economy and controlling issuance of currency. By doing a good job of readjustment, we can control issuance of currency and stabilize financial commodity prices. By controlling issuance of currency and putting a firm brake on it, we can effectively promote economic readjustment.

Whether or Not the Volume of Currency in Circulation is Normal is a Concentrated Reflection of Whether or Not the Development of the Economy is Normal

Maintaining a normal volume of circulation of market currency, stabilizing the currency value and stabilizing commodity prices constitute important economic problems in the realization of modernized socialist construction and also constitute problems of great concern to the people of the nation as a whole. The concrete process of excess issuance of currency was brought about under the incorrect leadership of the "left," which led to the production of "bogus big and empty" economic plans and the pursuit of high quotas which in actuality were false quotas, to investment in basic construction at an excessively great scale. with economic construction being done on too large a scale, to isolated development of heavy industry and to dissociation from improvement in the living standards of the masses of the people. The working out and implementation of this type of plans inevitably involves adopting the methods of bureaucratic administrative orders. Plans must be guaranteed through finance. If finance does not have any money, then one must rely on the banks to issue bank notes. As the result, capital construction exerts pressure on finance, finance exerts pressure on the banks and the banks issue bank notes. The issuance of currency is, in fact, not planned, the door is opened wide and an excess issuance of currency occurs.

Whether or not the volume of currency in circulation is normal is an overall reflection of whether or not the development of the national economy is normal and is a focal point of the activity of the national economy. From this focal point, we can get a perspective on the state of development of the national economy. This

was true for the excess issuance of currency during the "great leap forward" that began in 1958 and it was also true for the excess issuance of currency that occurred during the ten-year period of upheaval Production and circulation are a dialectical unity. Production determines circulation and circulation affects production. Problems during production are often revealed in the course of circulation. If something goes wrong in circulation, production cannot move forward. And if it has moved forward, it cannot go back.

When we summarize the lessons of experience concerning how high quotas and a high level of accumulation lead to excess issuance of currency, we must at present take full note of a further aspect of the matter, which is that exceeding the existing level of expansion of productive forces, making excessive increases in consumption funds, indiscriminate award of bonuses or excessive increases in wages and a growth rate that exceeds the national income results in consumption using up accumulation and similarly can bring on excess issuance of currency with the supply of consumer goods becoming insufficient. We can sany that in the course of history the use of the method of issuance of currency to handle basic construction is equivalent to founding basic construction on sand, for its foundations will not be solid and sooner or later it will collapse and regress. Similarly, if we rely on issuance of currency to provide bonuses and to increase wages, this is like painting a cake to satisfy one's hunger. It cannot truly raise and improve the standard of living of the people. Rather, it creates unnecessary economic turmoil, affects the stability of currency value and affects economic stability.

Maintaining a Normal Volume of Money Circulation and Promoting Economic Readjustment

To control issuance of currency and gradually withdraw the excess currency from the market we must promote readjustment of the proportional relationships in the national economy. We must actively expand agriculture, expand the light textile industry, reorganize the internal structure of heavy industry, bring about some planned increases in such short lines as power, fuel and communications and transportation and promote the continual growth of the national economy. The experience of history tells us that excess issuance of currency is the result of severe imbalance in the proportional relationships within the national economy. We must strive to put an end to this severe imbalance in the proportional relationships within the national economy within a few years. This is the objective basis for assuring that the volume of currency in circulation in the market will be normal.

To resolve the excess issuance of currency brought about because the lines of basic construction are too long, we must stimulate reduction in the scale of investment in basic construction so that there will be some retrenchment in it. In the past, we only saw the single aspect of investment in basic construction being an important means of expanding industrial production and of bringing about modernization. We did not see the other side of the coin, that basic construction not only requires the consumption of large amounts of manpower, material resources and financial resources but that it also requires putting a great deal of currency into circulation. In the past, we only considered whether there is enough steel, lumber and cement and whether the construction forces are sufficient for carrying out basic construction. However, we did not consider the

point that expanding the scale of basic construction makes necessary increases in the supply of mass consumer goods. We considered one aspect and neglected the other with the result that an excess volume of circulation of currency was brought about. In this way, even of there is a temporary increase in economic construction, there will be an inevitable regression.

If we are to control issuance of currency we must also strive for equilibrium in financial revenues and expenditures and in credit revenues and expenditures. In finance, expenditures should be kept within the limits of income and we should act according to our capability, undertaking amounts of work corresponding to the amounts of money available. We should to a great deal of work with a small expenditure of money and practice strict economy. We must not rely on subjective thought in deciding how much work to do. Rather, we must require finance to supply a certain amount of money. We must apply strict credit management and we cannot use bank credit as financial expenditures, for example, using the interest paid on loans and tax revenues to make up for industrial losses. We must cut down on banks. If we are loose about credit management, credit revenue and expenditures will not be in balance and excess issuance of currency will inevitably be brought about.

In short, if we are to bring about a thorough change in the passive state of "automation" of currency issuance that has existed in the past, we must succeed in making currency issuance a firm target of the national economy and we must get a firm hold on the gate of currency issuance. It is only in this way that we will be able to promote readjustment of the national economy in an effective way.

To Control Currency Issuance We Must Do More About Organizing Currency Recall

Control of issuance of currency is an important aspect of gradually bringing about a normal volume of circulation of currency in the market. However, this is not the sole aspect. We must also be active in organizing currency recalls in the process of promoting economic readjustment. The national economy is in a state of development and change and there are continual changes in the objective amounts of currency required in circulation. Therefore, we must maintain the fit between the amount of currency in circulation in the market and economic development under new circumstances.

In the course of promoting economic readjustment, we must organize more goods supply markets and currency recalls. We must make great efforts to promote production of consumer goods and to support the light textile industry in improving the quality of its products and increasing designs and varieties of products. We must support the commercial departments in purchasing more secondary agricultural products and saleable and needed industrial goods. However, expansion of production often requires a process and requires a definite period of time. When we start out from the circulation link, we often see quick results. We must take stock of commercial inventories, cut down on inequitable materials resources and commercial resources, supply the markets and recall currency.

The labor service supply can be expanded to recall currency. This has a very great latent force that can be exploited. We must expand the "third industry"

so that the people will not only be able to buy more good quality, inexpensive consumer goods but will also be able to enjoy a wide range of labor service supply. Loans should be supplied to support cultural, service, travel and public utilities for which there is a social demand, that are welcomed by the masses, that are managed so as to have an income and which have the capacity to pay back the loans so that the material and cultural standard of living of the people can be continually elevated and in order to increase noncommodity currency recalls.

We must make a great effort to organize credit recalls. We must tap the latent power of the savings deposits of the urban and rural people and collect more of the idle capital in the society. We must increase the points in the savings network for the convenience of the masses and we must do a good job of service and propaganda work in respect to savings.

Our economic work is at a great historical turning point. We must further eliminate the incorrect influences of the "left" so that economic work can be fundamentally freed from the bonds of the "left." We must carry our a thorough reform and carry out a readjustment of the national economy on the basis of a fundamental acknowledgement of the state of affairs in China in a clear-headed and healthy way. We will then be able to overcome excess issuance of currency and the difficulties of instability in currency values so that we will be able to achieve a great victory in the readjustment of the national economy.

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CHINA'S WATERPOWER POTENTIAL SURVEYED

Beijing SHUILI FADIAN [WATER POWER] in Chinese No 2, 12 Feb 81 pp 1-5

[Article by The Hydropower Construction General Bureau of the Ministry of Electric Power Industry: "On the Road Toward the Hydropower Construction Modernization in China"]

[Text] Editor's Note: In the 3 1/2 years from April 1977 to October 1980, China made a new survey on the nation's waterpower potential and obtained new results: Waterpower reserve in China is 680 million kilowatts, about 100 million kilowatts more than the survey result of the 1950's, out of which 370 million kilowatts can be developed and the annual electric power production is 1.9 trillion kilowatt-hours. These figures have been published in the May 23,1981 edition of RENMIN RIBAO and in the "Our Readers Ask" column of the first issue of SHUILI FADIAN [Water Power]. This paper gives a detailed description of the depth and scope of the recent survey on waterpower potential and careful analysis of the survey results. Statistical data are tabulated according to province and water system and comparison analyses are made with respect to survey results of the 1950's. This survey has further proved that China has abundant waterpower potential and the findings are very encouraging. We hope that all the hydropower workers will strategically strive to accelerate the hydropower construction in the spirit of the important speech given by Premier Zhao Ziyang regarding developing China's hydropower construction (see No 6, 1980 issue of SHUILI FADIAN for details) and make new contributions to solve our nation's energy problem.

In order to investigate China's exploitable waterpower potential and verify the hydropower reserve of previous surveys so as to facilitate the prospecting, planning and design of hydropower, to arrange properly construction layout and to provide data for studying the energy resource structure in various regions of China and for long-term planning, another nation-wide survey on waterpower potential was launched in April, 1977. After more than 3 years, the survey has successfully concluded in October, 1980. The objectives were accomplished as expected and the results obtained are encouraging. Due to the limitation of the present situation, no survey was made on Taiwan Province and this awaits supplementing in the future.

According to the survey results, there are a total of 3,019 rivers in China with waterpower reserve greater than 10,000 kilowatts, the combined hydropower reserve is 660 million kilowatts (equivalent to a power production of 5.7 trillion kilowatt-hours per annum). Based on potential hydropower stations with single station machine capacity of 10,000 kilowatts and higher, the total capacity for machine installation is 360 million kilowatts and the annual power production is 1.8 trillion kilowatt-hours, out of which, the machine capacity of stations already built or currently under construction is 25.6 million kilowatts and the annual electricity production is 108.6 billion kilowatt-hours. In some provinces, rivers with hydropower reserve less than 10,000 kilowatts are also surveyed. If these rivers are also included, the national waterpower reserve is 680 million kilowatts, equivalent to an annual power production of 5.9 trillion kilowatt-hours. If the machine capacity per station is 500 kilowatts, the total capacity for machine installation is 370 million kilowatts and the annual electric power production is 1.9 trillion kilowatt-hours.

Results of this survey show an increase of 100 million kilowatts in waterpower reserve over the past which further indicate the abundance of China's resources and the great prospects for hydropower construction.

I. The Depth and Scope of the Recent Survey and Its Findings

The recent survey on waterpower potential was unprecedented with regard to the manpower mobilized, the scope of investigation, the work volume accomplished and the depth of study. Various river-valley organizations of electric power and water conservation systems and ministry level and provincial level design departments provided a great amount of manpower and completed great volumes of work; many provinces also mobilized regional and county forces to participate in the survey. In the census, the participating units carefully studied, analyzed, classified and organized the voluminous data on general surveys, prospectings, explorations, plannings and designs accumulated over the 30 years since the revolution. They collected extensive fundamental hydrological and topographical data, resurveyed some important rivers and sections of rivers, and explored "blank" rivers or sections missed in previous surveys. Qinghai Province overcame multitudes of difficulties and supplemented the exploration of the head section in the upper reaches of Huang He and the inland rivers. Kunming Institute of Survey and Design of the Ministry of Electric Power Industry also endured great hardship in completing the exploration of the upper reaches o. Lancang Jiang in Yunan Province. Many units have also combined the general survey with river planning and repeated the survey on some major rivers and river sections, such as the mainstream of Huang He, the Shigu to Yibin section of Jinsha Jiang, Yangtze Valley, middle reaches of Lancang Jiang, Nanpan Jiang, Hongshui He, Dadu He, Yalong Jiang, Jialing Jiang, Ou Jiang, Gan Jiang, Min Jiang, Han Jiang, Luan He, Kaidu He and Yili He. According to incomplete statistics, 46 units of river valley organizations, ministry level and provincial design institutes and teams, and provincial electric power and water conservation bureaus participated in the general survey. Approximately 300 people joined the organization team and a total of 2,700 people (including those at the regional and county level) participated in the general survey. They spent approximately 150,000 worker-days, measured and calculated more than 10,000 rivers of various sizes, 380,000 kms of river mileage and 4.6 million square kms of river valley. The rivers surveyed number more than 1,400 with a range of 90,000 kms, 3,000 items of data were consulted, more than 1 million words of written description were compiled, and 190 waterpower resource distribution diagrams and 600 vertical cut

schematic diagrams for graduated river developments were drawn. After this general survey, rivers with more than 10,000 kilowatts of hydropower reserve and power stations with capacities greater than 10,000 kilowatts are all clearly documented. In many provinces and regions, rivers and power stations with several thousand or several hundred kilowatts are also surveyed.

This general survey was conducted under unified standard and computation method. In order to plan the specific division of work, coordinate the progress, exchange the experience, coordinate development projects within provinces and between provinces and water systems and check the discrepancies in waterpower reserve data, five national conferences were held successively. In these conferences, the main points of the national waterpower general survey were determined, the scope of survey, technical requirements and plans for job division and collaboration were drawn up, technical details for statistical limits, reporting method of results, editing format and volume division and certification standards were clearly spelled out. In the meantime, central units at various river valleys also held coordination and certification work conferences. Based on incomplete statistics, four conferences were held by Chang Jiang water system, Huang He system held one conference, Zhu Jiang had four, Hai He and Luan He had two, Huai He had three, rivers in northeast China had three and international rivers in the southwest held one conference. Various provinces and regions did extensive organization and actual surveys and held many meetings of their own. All these activities provided a good foundation for concerted pace, unified standard and assurance of the results.

The computation method for hydropower reserve used in this general survey is consistant with the method used in general surveys made in the 1950's, that is, along with the confluents, the river is divided into a number of sections based on the flow rate Q_{ave} averaged over many years and the water head ΔH, the hydropower reserve of the section is computed with the formula $N = 9.81 Q_{ave} \Delta H$ and the sum over all the sections is the accumulated hydropower reserve of the river. All provinces, regions and units used the same method of computation and the same standard.

As a result of the enormous amount of elaborate work described above, certified in each step, results of the waterpower potential general survey were compiled for the 10 large water systems, namely, Chang Jiang, Huang He, Zhu Jiang, Hai He and Luan He, Huai He, rivers in northeast China, rivers in southeast coastal area, international rivers in southwest China, Yalutsangpu Jiang and other rivers in Tibet, and inland rivers in northern China and in Xingjiang. This completed the general survey in the 29 provinces, municipalities and autonomous regions of China. The survey results are compiled into 26 volumes of "Results of Waterpower Potential General Survey" and, based on this, the "National Waterpower Potential General Survey Results." Table 1 shows the hydropower reserve statistics for each province (region). Table 2 shows the hydropower reserve statistics according to watershed systems. Table 3 shows the comparison of two general surveys regarding the number of rivers and the hydropower reserve of the water systems.

Table 1 Hydropower reserve statistics of China according to province (region)

a 编号	b 地区、省(区)	c 水能蕴藏量		
		d 理论蕴藏量/万千瓦	技术可开发量/亿千瓦时	f 占全国比重(%)
	全国总计	67004.71	59921.8	100
I	华北地区	1229.93	1057.4	1.8
1	京、津、冀北	220.84	193.5	0.3
2	山西	511.45	418.0	0.8
3	内蒙	497.64	435.9	0.7
II	东北地区	1212.64	1062.3	1.8
4	辽宁	175.19	153.5	0.3
5	吉林	297.98	261.0	0.4
6	黑龙江	739.49	647.8	1.1
III	华东地区	3004.84	2632.3	4.4
7	上海、江苏	199.10	174.4	0.3
8	浙江	688.80	530.9	0.9
9	安徽	398.08	348.7	0.6
10	福建	1945.91	916.2	1.5
11	江西	682.03	597.5	1.0
12	山东	78.76	68.6	0.1
IV	中南地区	6109.37	2613.8	9.5
13	河南	477.36	418.2	0.7
14	湖北	1823.13	1597.1	2.7
15	湖南	1502.45	1342.4	2.3
16	广东	823.60	721.5	1.2
17	广西	1701.83	1018.6	2.6
V	西南地区	47331.18	41462.1	70.0
18	四川	13038.78	13172.2	22.3
19	贵州	1871.47	1642.0	2.8
20	云南	10261.00	9078.9	15.3
21	西藏	30065.93	17569.0	29.7
VI	西北地区	8417.69	7373.9	12.5
22	陕西	1274.89	1116.8	1.9
23	甘肃	1428.60	1249.5	2.1
24	青海	2153.08	1886.6	3.2
25	宁夏	207.30	181.6	0.3
26	新疆	3353.45	2939.4	5.0

Key:
a. Code
b. Area, province (region)
c. Hydropower reserve
d. In 10,000 kilowatts
e. In 100 million kilowatt-hours/year
f. Percentage of the national total
g. National total

I. Northern Area
- 1. Beijing, Tianjin, Hebei
- 2. Shanxi
- 3. Nei Monggol

II. Northeastern Area
- 4. Liaoning
- 5. Jilin
- 6. Heilongjiang

III. Eastern Area
- 7. Shanghai, Jiangsu
- 8. Zhejiang
- 9. Anhui
- 10. Fujiang
- 11. Jiangxi
- 12. Jiangxi

IV. South Central Area
- 13. Henan
- 14. Hubei
- 15. Hunan
- 16. Guangdong
- 17. Guangxi

V. Southwestern Area
- 18. Sichuan
- 19. Guizhou
- 20. Yunnan
- 21. Xizang

VI. Northwestern Area
- 22. Shaanxi
- 23. Gansu
- 24. Qinghai
- 25. Ningxia
- 26. Xinjiang

Note 1. Table 1 does not include Taiwan Province

2. Table is based on a nationwide statistical limit, i.e., 3019 rivers with hydropower reserve exceeding 10,000 kilowatts and the total is 656 million kilowatts. Table also includes rivers with reserves less than 10,000 kilowatts provided by provincial statistics; the lower limit is set by individual provinces. The grand total is 676 million kilowatts.

3. Hydropower reserve is computed on the basis of flow rate of each river section averaged over many years.

Table 2 Hydropower reserve statistics of China according to watershed systems

编码 a	水系 b	水能蕴藏量 c		
		装机容量/万千瓦 d	年电量/亿千瓦小时 e	占全国百分比(%) f
	全国 g	67604.71	59231.8	100
1	长江	26801.77	23478.4	39.6
2	黄河	4054.80	3552.0	6.0
3	珠江	3348.37	2933.2	5.0
4	海河、滦河	294.40	257.9	0.4
5	淮河	144.96	127.0	0.2
6	东北诸河	1530.60	1340.8	2.3
7	东南沿海诸河	2066.78	1810.3	3.1
8	西南国际诸河	9690.15	8488.6	14.3
9	雅鲁藏布江及藏西诸河	15974.33	13993.5	23.6
10	北方内陆及新疆诸河	3698.55	3239.9	5.5

Key:
a. Code
b. Water system
c. Hydropower reserve
d. In 10,000 kilowatts
e. In 100 million kilowatt-hours/year
f. Percentage of national total
g. National total

1. Chang Jiang
2. Huang He
3. Zhu Jiang
4. Hai He and Luan He
5. Huai He
6. Rivers in northeastern China
7. Rivers in southeast coastal area
8. International rivers in southwestern China
9. Yalutsangpu Jiang and other rivers in Tibet
10. Inland rivers in northern China and in Xinjiang

Note

1. Table does not include Taiwan Province

2. Table is based on nationwide statistical limit, i.e., 3,019 rivers with hydropower reserve exceeding 10,000 kilowatts and the total is 656 million kilowatts. Table also includes rivers with reserves less than 10,000 kilowatts based on provincial statistics; the lower limit is set by individual provinces. The grand total is 676 million kilowatts.

3. Hydropower reserve is computed based on the flow rate of each river section averaged over many years.

Table 3 Comparison of 1955 and present survey results

a	b	c	d				
		e	f		e	f	
			g	h		g	h
	全国 i	1535	63567.2	60824.8	3019	65019.18	57482.6
1	长江	392	21635.3	18952.5	1090	25967.99	22498.3
2	黄河	134	3274.1	2868.1	140	4027.82	3528.5
3	珠江	110	2855.1	2501.0	286	3083.63	2700.4
4	海河、滦河	49	190.1	166.5	53	292.14	255.9
5	淮河	18	80.1	70.2	29	108.57	95.1
6	东北诸河	281	1821.8	1595.9	158	1512.06	1324.6
7	东南沿海诸河	114	1161.2	1017.2	331	1680.67	1472.4
8	西南国际诸河	124	9069.4	7944.8	281	9559.43	8374.0
9	雅鲁藏布江及西藏其他河流	128	11726.7	10272.6	265	15974.33	13993.8
10	北方内陆及新疆诸河	185	1753.4	1536.0	383	3698.55	3239.9

Key:
a. Code
b. Water system
c. 1955 results
d. Present survey results
e. Number of rivers
f. Hydropower reserve
g. In 10,000 kilowatts
h. In 100 million kilowatt-hours/year
i. National total

1. Chang Jiang
2. Huang He
3. Zhu Jiang
4. Hai He and Luan He
5. Huai He
6. Rivers in northeastern China
7. Rivers in southeast coastal area
8. International rivers in southwestern China
9. Yalutsangpu Jiang and other rivers in Tibet
10. Inland rivers in northern China and in Xingjiang

Note

1. The Taiwan contribution has been subtracted from the 1955 results.

2. Statistics of the present survey are based on rivers with hydropower reserve greater than 10,000 kilowatts.

In the comparison as shown in Table 3, it can be seen that there were only 1,535 rivers in the 1955 statistics whereas the recent general survey, using 10,000

kilowatts of hydropower reserve as a definitive statistical limit, shows 3,019 rivers. This indicates that the reason for the increase of the national hydropower reserve to 680 million kilowatts is because of the broadened range of the statistics.

II. Analysis of Exploitable Waterpower Potentials Found in the General Survey

In the recent general survey, China's exploitable water resources were checked out for the first time. The resources can be divided into four classes (see Table 4) according to the advance of survey and design activity. Geological survey and engineering design for the resources in the first class have progressed to a degree equivalent to the dam selection stage. In the second class, some geological surveys and engineering designs have been done and there has been a general understanding of the construction conditions. For resources in the third class, only on-site exploration and graduated layout planning have been done but no drilling has been performed. In the fourth class, only indoor estimates of the hydropower were made and an on-site survey has yet to be made.

Table 4 Classification of exploitable hydropower resources with single station capacity above 10,000 kilowatts

1	2	3 (万千瓦)	4 (亿度)	5 (%)
6	142 + 2/2	1316.23	570.72	3.1
7	72 + 1/2	1244.82	515.03	2.8
8	187 + 9/2	6867.45	3057.88	16.8
9	201 + 4/2	5274.13	3016.91	16.6
10	1178 + 18/2	19623.92	10823.55	59.5
11	112	780.77	394.11	2.2
12	1920 + 36/2	35707.32	18184.00	100.0

Key

1. Classification
2. Number of stations
3. Capacity (in 10,000 kilowatts)
4. Annual power production (in 100 million kilowatt-hours)
5. Percentage
6. In existence
7. Under construction
8. First Class
9. Second class
10. Third class
11. Fourth class
12. Total

Note:

1. For power stations located on border rivers, each station is represented by 1/2. As far as China is concerned, 1/2 is actually one station, 2/2 represents two stations, and so on.

2. For rivers with multiple development projects, hydropower resource statistics are entered based on one representative project. Comparison proposals are listed for individual cases but are not counted in the statistics.

As can be seen from Table 4, the fourth class resources only account for 2.2 percent of the total. Even so, preliminary plans for graduated development was made based on the topograph and an energy reserve was estimated based on flood limitation and possible dam height with available technology. The other classes of waterpower resources account for 97.8 percent of the total and they have all reached at least the survey stage. The first 4 categories of resources add up to 39.3 percent and have advanced to various degrees of river planning stages. The 1st class sites account for 16.8 percent of the electric power reserve and have progressed to a stage equivalent to dam selection. Power stations in operation and under construction amount to 5.9 percent. The results of the recent general survey incorporated data of the past 30 years and can be considered reliable. However, one should also note that there are still 60.7 percent (i.e. 3d and 4th classes) of the exploitable waterpower reserves that have only had a general survey and not in depth exploration. Moreover, due to a long period of time when there were no set rules to follow in river planning and due to the backward methods in geological survey, the planning work for individual rivers and regions in the first and second class categories is still inadequate. This often leads to less than rational layout plans for hydroelectric power source choice and for graduated development projects of rivers. All these inadequacies call for further efforts. It should also be pointed out that there are still those rivers and sections of rivers, amounting to 25 percent of the hydropower reserve, for which only the computation of hydropower reserve was done and no other work for potential development was performed. Hence, they are not included in the exploitable resource categories. These are mainly medium and small rivers in remote areas of Tibet, Yunnan and Sichuan and, according to estimate, there will not be any large change on the activity level for a long period of time and the amount of conversion to exploitable waterpower resources will not be great. On the other hand, among the expoloitable waterpower reserves already counted, since the general survey does not include economic analysis, there are inevitably a few resources that will not be developed in the future due to economic restrictions such as flooding. But this will be a local perturbation and not a large change in amplitude. With deeper investigation in the future, the category of exploitable resources will increase and there is no doubt about that. Tables 5 and 6 give the statistics of exploitable waterpower resources in China according to province (region) and water system, respectively.

Table 5 Statistics of exploitable waterpower resources in China listed according to province (region)

a 编号	b 地区、省(区)	c 蕴藏容量 (万千瓦)	d 年发电量 (亿度)	e 占全国比重 (%)
	f 全国	37853.24	19233.04	100
I	华北地区	691.98	232.25	1.2
1	京、津、河北	193.71	41.77	0.2
2	山西	263.94	106.98	0.6
3	内蒙	244.29	83.50	0.4
II	东北地区	1199.45	383.01	2.0
4	辽宁	163.31	35.85	0.3
5	吉林	432.92	109.56	0.6
6	黑龙江	603.19	218.61	1.1
III	华东地区	1790.22	687.94	3.6
7	上海、山东	9.75	3.10	—
8	苏北	465.52	145.63	0.8
9	安徽	88.15	26.09	0.1
10	福建	706.12	320.20	1.7
11	江西	610.86	190.54	1.0
12	山东	10.82	2.38	—
IV	中南地区	6743.49	2973.65	15.5
13	河南	292.88	111.63	0.6
14	湖北	3369.47	1493.84	7.8
15	湖南	1083.84	488.91	2.5
16	广东	628.99	239.80	1.3
17	广西	1414.31	639.47	3.3
V	西南地区	23234.83	13950.36	67.8
18	四川	9166.51	5162.91	26.8
19	贵州	1291.76	652 14	3.4
20	云南	7116.79	3944.53	20.5
21	西藏	5659.27	3300.48	17.1
VI	西北地区	4193.77	1904.93	9.9
22	陕西	550.71	217.04	1.1
23	甘肃	910.97	421.46	2.2
24	青海	1799.08	772.08	4.0
25	宁夏	79.50	31.62	0.2
26	新疆	853.51	459.73	2.4

Key:
a. Code
b. Area, privince (region)
c. Capacity (in 10,000 kilowatts)
d. Annual power production (in 100 million kilowatt-hours)
e. Percentage of the national total
f. National total

I. Northern Area
   1. Beijing, Tianjin, Hebei
   2. Shanxi
   3. Nei Monggol

II. Northeastern Area
   4. Liaoning
   5. Jilin
   6. Heilongjiang

III. Eastern Area
   7. Shanghai, Jiangsu
   8. Zhejiang
   9. Anhui
   10. Fujian
   11. Jiangxi
   12. Shangdong

IV. South Central Area
   13. Henan
   14. Hubei
   15. Hunan
   16. Guangdong
   17. Guangxi

V. Southwestern Area
   18. Sichuan
   19. Guizhou
   20. Yunnan
   21. Xizang

VI. Northwestern Area
   22. Shaanxi
   23. Gansu
   24. Qinghai
   25. Ningxia
   26. Xinjiang

Note
1. Table is based on power stations with 500 kilowatts per station or higher.

2. Percentages of the national total are computed on the basis of annual power production.

Table 6 Statistics of exploitable waterpower resources in China listed according to water system

编号[a]	水系[b]	装机容量[c] (万千瓦)	年发电量[d] (亿度/年)	占全国比重[e] (%)
	全国[f]	37869.24	19233.01	100
1	长江	10724.33	10274.98	53.4
2	黄河	2800.39	1169.91	6.1
3	珠江	2485.02	1121.78	5.8
4	海河、滦河	213.49	51.68	0.3
5	淮河	66.01	18.94	0.1
6	东北诸河	1370.75	439.42	2.3
7	东南沿海诸河	1389.68	547.41	2.9
8	西南国际诸河	3708.41	2098.68	10.9
9	雅鲁藏布江及西藏其他诸河	5028.23	2968.58	15.4
10	北方内陆及新疆诸河	996.94	538.66	2.8

Key:
a. Code
b. Water system
c. Capacity (in 10,000 kilowatts)
d. Annual power production (in 100 million kilowatt-hours)
e. Percentage of the national total
f. National total

1. Chang Jiang
2. Huang He
3. Zhu Jiang
4. Hai He and Luan He
5. Huai He
6. Rivers in northeastern China
7. Rivers in southeast coastal area
8. International rivers in southwestern China
9. Yalutsangpu Jiang and other rivers in Tibet
10. Inland rivers in northern China and Xinjiang

Note

1. Based on power stations with 500 kilowatts per station or higher.

2. Percentages of the national total are computed on the basis of annual power production.

Based on the analysis given above, we believe that the recent survey has for the first time checked out the exploitable waterpower potentials in China. It has verified and remeasured the hydropower reserve and corrected the survey results of the 1950's, so the current results are relatively reliable and scientifically based.

The survey reflects the depth of the current investigation of waterpower potential in China and is very valuable for establishing rational energy policies for the future. In the past, due to the lack of a rational energy policy, the development of hydropower has been slow and the usage level of developed waterpower resources has been very low. Recently, the leading comrade of the State Council has made an important speech concerning China's hydropower construction and pointed out the need to speed up hydropower construction from a strategic level. This has correctly and essentially reflected the objective reality that the waterpower potential in China is extremely high and the conditions for development are superior. Our hydroelectric workers must determine to carry out thoroughly the spirit of the State Council directive, to accelerate the pace of construction from all aspects including survey, planning, design, construction and scientific research, and to exploit the advantages of hydropower in meeting the demands of the four modernizations.

9698
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DEVELOPMENT DIRECTIONS FOR SMALL HYDROPOWER DISCUSSED

Beijing SHUILI FADIAN [WATER POWER] in Chinese No 2, 12 Feb 81 pp 6-10

[Article by Zhu Chengzhang [2612 2052 4545] of the Office of Planning, Ministry of Electric Power Industry: "On the Development Directions of Small Hydropower in China"]

[Text] In the past 10 years or so, small hydropower developed rapidly in China and has been effective in solving the rural energy problem and in promoting agriculture production. But many problems also existed, mainly in the development direction and the economic efficiency.

Since 1980, some newspapers and magazines highly promoted small hydro, but we have different opinions on some of the viewpoints. In particular, Comrade Wang Benzhou [3769 1149 3166] published an article entitled "Do Not Bind the Hands and Feet of Small Hydro" on page 2 of the September 26, 1980 edition of RENMIN RIBAO in which the superiority of small hydro was preferentially publicized and the electric power departments were criticized. In response, Jinhua Electric Power Department telegraphed their view to RENMIN RIBAO and the newspaper indicated that they would investigate the problem. It is therefore very necessary to look into the problems existing in small hydropower development and make small hydro progress in the right direction.

Historical Remarks

Since the revolution, the development of small hydro in China has gone through three periods. The 1st period was the 17 years before the "Culture Revolution" when the electric power industry carried out the policies of "Develop both hydroelectric and thermoelectric power, whichever is more appropriate for the location," and "Develop large, medium and small hydropower simultaneously, mainly based on large-scale hydro." During the first period, electric power industry progressed smoothly, there were essentially no power shortages in the nation and small hydro had grown substantially--its capacity of machine installation increased from 2,000 kilowatts to 380,000 kilowatts. In this period, small hydro was limited to 500 kilowatts per machine and the development insisted on the principles of using what it generates, facing the rural needs and reaching local equilibrium. Economic effects were emphasized and the development direction of this period was proper. The second period was during the "Culture Revolution" in which the correct policies of the past on electric power development were mistakenly criticized and the status of small hydro was improperly elevated. This period produced the policy of "Develop large, medium and small hydropower, but put more efforts on medium and small," and the

slogan "Develop electricity on the regional, county, commune and team levels." With nationally supplemented investment and material, a high quota for small hydro development was proposed. The development of small hydro progressed from outside the electric power networks to within the networks, and extended from supplying power to agriculture to supplying power to local industries. Furthermore, hydroelectric power stations with capacities less than 12,000 kilowatts per station or 6,000 kilowatts per machine were beginning to be counted as small hydro, which sent the volume of small hydro into a sharp climb. If small hydros were to be included in the power networks, their reliability, continuity and economy must be improved. This was in fact not the case; on the contrary, the annual service hours decreased from 3,000 hours in 1966 to the current level of less than 2,000 hours per year. As the proportion of small hydro increased, the continuity and reliability of electric supply decreased and the conflicts between small hydro and large networks and between small hydro and local industries became more and more serious. The third period was after the fall of the "gang of four." In this period, the old policies on small hydro continued and there were more and more government subsidized investments (in the past few years, the central and local governments invested more on small hydro than on large-and medium-size hydropower stations). More and more small hydro machines were installed: from 1970 to 1975, the increase averaged 300,000 to 400,000 kilowatts per year; from 1976 to 1979, the average increase was 700,000 to 800,000 kilowatts per year; in 1979 it reached a peak and increased more than 1 million kilowatts. At the end of 1979, small hydro has reached a capacity of more than 6 million kilowatts, or 30 percent of the national total hydroelectric capacity, and an annual power production of 10 billion kilowatt-hours, or 20 percent of the national hydroelectric power production. Out of which 1.68 million kilowatts of machine capacity was combined into large networks and delivered approximately 3 billion kilowatt-hours into the networks. A substantial fraction of the hydroelectric stations in the several thousand kilowatts to 12,000 kilowatts range which were counted as small hydro in the past are built with national investment and managed by national electric power departments. Beginning in 1980, some provinces have transferred this portion of small hydro to the management of local water conservation departments and greatly increased the volume of small hydro under local control. Moreover, since the interests of small hydro were preferentially emphasized in opening up the networks, the conflict between small hydro and national power networks is further aggrevated.

Judging from the current trend, major developments of small hydro will be in the south where hydropower reserve is abundant and in areas where national power networks are well developed. These are precisely the areas where hydropower accounts for a large percentage and further developments in small hydro and continuous extension of national power networks will lead to increasingly acute conflicts between them and cause greater and greater loss to the nation. It is therefore essential to investigate the development direction of small hydro and to resolve the conflict properly. Problems are not hard to discover and solve if we face the reality and are realistic. Bringing up this question is by no means hampering the development of small hydro; instead, we wish to put small hydro on a proper course where it can develop its advantages, overcome its shortcomings and have a healthy future.

Foreign Experience

In all the countries in the world, hydroelectric construction follows a general rule: it is built up from small hydropower; when the electric power industry is in its

budding stage and networks are not developed, only small stations and small machines can be built. As the electric power industry develops and the ability to manufacture electric machinery improves, it gradually moves toward the more economical and reliable large machine groups, power stations and networks. Wherever the networks reach, the original small hydro stations are converted or phased out. Small hydros are mainly built at places where large power networks cannot reach. This explains why in today's advanced nations rural electricity is highly developed and small hydro only accounts for a small fraction. In developed nations, the percentage of small hydro is usually a mere 4-9 percent of the total hydropower. Japan has the highest small hydro percentage among the developed nations and yet it is only 15 percent. In China this figure is as high as 30 percent.* In these nations, small hydro not only assumes a small proportion, the facility utilization time is as high as 6,000 hours, 3 times of that in China. The average capacity per small hydro station is mostly in the 500-2,000 kilowatts range. Even in Switzerland where they have the smallest stations the average size is 257 kilowatts. In contrast, China has only 70 kilowatts. Small hydros in the advanced nations are highly automated, have low operating costs, require no compensation from the power networks and can provide an independent electricity supply. But except for the ones already in existence and for special need, they generally do not build small hydros of 1,000-kilowatt capacity or less. In a 1976 investigation and evaluation of waterpower resources, Japan planned to build 1,930 small hydro stations (300-10,000 kilowatts) with a total capacity of 4,161,000 kilowatts, or 2,156 kilowatts per station on average, and 5,223 hours of service per year. Also planned was the construction of 410 large-and medium-sized hydropower stations with a total capacity of 27,357,000 kilowatts, or an average of 67,000 kilowatts per station, and a utilization time of 1,368 hours.

Today there are two types of countries in the world that pay attention to the construction of small hydropower. One type is underdeveloped nations where the electric power industry is in the beginning stage; the other type is developed nations such as Japan, England and France where all the prime hydropower resources are basically developed and they then turn to small hydro and low waterhead stations that were considered uneconomical in the past.

In short, the construction of small hydro should be done according to the locality and should emphasize the economic rationality. Recently experts of the United Nations energy conference reached the following conclusion about small hydropower: "Although small hydropower amounts to only a small fraction of hydroelectric power production, it may serve a very important purpose in rural areas in developing nations." That is one way of considering it. Also, "China may be the most experienced nation in the area of small hydro equipment." Notice that "equipment" was mentioned here, not all aspects of small hydro. Under no circumstances should we think that every aspect of small hydro construction in China has received international recognition. The group of experts stressed that "it is necessary to investigate ways to reduce the construction costs of small hydro, to improve its reliability and to find avenues by which small hydro can be better linked with large systems." The construction cost, reliability and linkage with network are precisely the outstanding problems in small hydro construction in China.

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*See "Utilization of Hydropower Resources in Foreign Nations" by Lu Qinkan [7120 2953 0170], SHUILI FADIAN [WATER POWER] No 5, 1980.

In the initial period after the liberation, China had a weak electric power base and the supply range of the power networks were very limited. At that time it was rational and economical to develop small hydro in the vast rural area. Today, continued small hydro development in remote and mountainous areas is equally significant. However, as the electric power industry develops, the power networks extend over larger areas. China in particular has rich hydropower resources and many superior large and medium hydro stations are yet to be developed. Under these circumstances, the economic rationality of continued development of uneconomical small hdyro in areas supplied by large power networks to supply power to the large networks and using small hydro to substitute large and medium hydropower stations and thermoelectric power stations in large networks is indeed debatable.

Experience in foreign nations and the 30 years practice of electric power construction in China have proved that small hydro is suitable for scattered rural electrical needs that are not very demanding on reliability. It has the advantage that it takes effect quickly, uses no fuel and sometimes can be combined with rural water construction. In areas where large networks cannot reach, small hydro can solve problems that large networks cannot. Therefore, small hydro should be vigorously developed in such areas so that large, medium and small can work together and small hydro and large network can match closely in solving the rural electrical supply problem economically and rationally. However, building small hydro in areas supplied by large networks and especially when it exceeds the local rural demand for electricity and purposely building small hydros to sell electricity to the large networks will turn the advantages into disadvantages. Particularly in the past 10 years, extensive construction of small hydros with poor regulation power and low utilization hours has further degraded the economy of small hydro and brought nothing but losses. We should learn from the useful international experience and experts' opinions and really consolidate the small hydro construction in China.

Where the Conflict Lies

Today's problems in small hydro construction are mostly manifested in the unilateral development and poor economic performance. Here we shall express some views regarding only the conflict between small hydro and the nation's power networks.

For years the construction of small hydro was not based on the actual and possible agriculture demand of electricity of the location; instead, it was based on assigned quota from the top down. In order to fulfill the quota assigned by the superior, local areas unilaterally pursued higher machine capacity. Small hydro investments were subsidized based on the kilowatt figure; to receive more investment subsidy, the local areas would have to install more machines. A few years ago there was a "10,000 kilowatt county" list, which has particularly aggrevated the tendency toward pursuing higher capacity. Objectively speaking, counties, communes and teams have only limited money and material, very little government subsidy is left after purchasing mechanical and electric equipment. In order to save money, civil engineering construction must be cut back and make do with what rudimentary facility there is; as a result, the reliability and safety of electric power supply are adversely affected. Besides, the design for small hydro often adapts the design code and standard for large and medium hydropower stations and not based on the actual situation and local power demand characteristics. Thus, after small hydro stations are built, they cannot provide

power year round and equipment capacity cannot be fully utilized. All the small hydros already built wish to latch on to power networks whenever possible to improve equipment utilization rate and the reliability of power supply in regions they provide with electricity. Small hydros are using the large networks as their storage battery and in essence unload the difficulties and economic losses caused by irrational development to the national power networks. This further aggrevates the improper trend in small hydro to unilaterally pursue bigger machine capacity while paying no attention to the actual efficiency. As a result, more small hydro stations are built that have poor regulatory function and low utilization rate, generate small amounts of electricity and cannot guarantee year-round normal supply of electricity. This is the fundamental reason behind the dilemma of small hydro and large network.

For example, among the 68 counties (cities) in Zhejiang Province, 55 have small hydropower and 20 counties have machine capacity above 10,000 kilowatts. The average capacity of these small hydropower stations is less than 100 kilowatts, equipment utilization time is around 1,000 hours, with some only 600-700 hours. The entire Zhejiang Province has 422,700 kilowatts of small hydro but the annual electrical power production is only 525 million kilowatt-hours. If small hydro stations with utilization time of 6,000 hours were built, only 1/5 the machine capacity would be needed (about 90,000 kilowatts). They not only would perform better, but would also save great amounts of equipment and investments. Although the small hydro situations in other provinces are not as bad as in Zhejiang, the nature of the problem is the same.

At the present the focus of conflict between small hydro and national network is that small hydro in the area supplied by the network is unloading their own difficulties to the network and demanding preferential treatment of their interests at the expense of normal income of the national network. The networks and the large and medium power stations are asked to make room for increased output by small hydros during the flood season and to accept irrational and uneconomical modes of operation. The networks are also asked to buy low quality electric power from small hydros at high prices and small hydros built with national investments are placed under the jurisdiction of local water conservation departments. In order to insure safe production and delivery of electric power and to protect the national revenue, the networks request the small hydros to straighten up their development direction and refuse to accept unqualified small hydros to join the networks and irrational operating methods. They also request that power provided to small hydros be fairly priced according to quality and they not agree to give away small hydros built with national investments. Although these claims are in the national interest, they often do not have the support of some provinces and counties and the conflicts cannot be resolved rationally.

What are the problems of developing small hydro in areas supplied by large networks? (1) Most of the small hydro stations built in China today cannot be regulated, they provide electric power to the network only during flood season. As far as the networks are concerned, they are repetitious constructions and under most circumstances they do not conserve energy and some even waste energy. When small hydro stations supply power to networks with a large component of hydroelectric power, local area is concerned about the income of small stations and, as a result, small stations are running at full capacity during high water season and large stations suffer a loss in power production from not using the water. Most small hydro stations linked

to networks belong to this type because locations for developing small hydro stations are precisely locations for building large-and medium-scale hydroelectric stations. At present the 1.68 million kilowatts of small hydro stations in large networks are mainly distributed in 9 provinces and regions including Sichuan. In these provinces and regions, 40 to 60 percent of the total capacity is hydroelectric. In the national networks, machines with 6,000 kilowatt capacity or higher that participate in unified dispatch account for 40 to 100 percent of the maximum load; if the seasonal small stations are joining in, the large and medium stations will suffer production losses. In Sichuan Province the large and medium hydroelectric machine capacity in 1979 was already 82 percent of the maximum load; even if all the thermoelectric power productions are halted during the nighttime valley load in the flood season, large and medium hydropower stations still need to dump water. But Sichuan has 206,000 kilowatts of small hydro in the network that add 480 million kilowatt-hours per year. Actually the thermoelectric power production cannot all be halted due to safety consideration and limitations on the delivery ability of the network, so the large and medium hydro stations had to dump great volumes of water. Gongzui and Bikou hydropower stations in Sichuan lose 400 million kilowatt-hours every year due to water dumping and one of the main causes for that is the seasonal power supply of the small hydro. In the month of August, 1979, the total electric power consumption in Sichuan was 5 percent less than that of July, 1979; but small hydro delivered 100,000 kilowatts more to the network, this also caused the large and medium stations in the network to dump water. In 1978, 135,000 kilowatts of small hydro joined the network in Fujian and added 300 million kilowatt-hours of input per year; in the same period, large and medium hydropower stations in the north Fujian network lost 280 million kilowatt-hours due to water dumping.

When small hydro delivers electricity to the network, it requires many stages of transformers and the line loss is as high as 20-30 percent. It is more economical to have the large and medium station produce the power. In provinces like Fujian and Sichuan, small hydro delivering into the network not only is no help to the rural economy but also makes negative contributions to the large network. Although small hydro stations received compensation from the networks, the nation suffered great losses and that is indeed a shame! Some believe that it saves energy to have small hydro deliver power to large networks, this claim has no factual support.

There are also problems for small hydro to deliver power to networks that have a large fraction of thermoelectric power production. Nowadays the fraction of high temperature, high pressure, large capacity machines has increased to conserve energy. Such machine groups cannot carry a low load or a frequently varying load, it is very difficult for them to accept constantly varying seasonal electric power from small hydro stations. Comrade Wang Benzhou [3769 1149 3166] accuses thermoelectric power of an unwillingness to regulate the peak. A few years ago such situations did exist, but the condition has improved substantially because of recent years' consolidation. It is also inappropriate to ignore the actual difficulties of the thermoelectric group. The Urumqi network in Xinjiang uses liquid slag discharge in thermoelectric power production. When the load is too small, the slag does not discharge and the thermoelectric machine group cannot operate in conjunction with small hydro when the latter runs at full capacity. This has put the network constantly under a high frequency condition. This led to water dumping in small hydro, who took the case to the provincial government and the Electric Power Industry Department had to face criticism.

Moreover, even if the network can stop its thermoelectric power to accept the seasonal hydroelectric power from the small stations, each kilowatt-hour is worth only about 0.01 yuan based on substitution of thermal power coal consumption with line loss taken into account, and that is not even enough to compensate for the costs of the small hydro. (Liujiaxia hydroelectric power station delivers seasonal power in flood period to places like Shaanxi to substitute for thermal power coal consumption. The price set by the State Economic Commission is only 0.018 yuan per kilowatt-hour. Small hydros suffer high line losses so the actual value is even lower than that. At present the state sells electricity to seasonal consumers at a price of 0.025 yuan per kilowatt-hour; after tax and other expenses are deducted, the net profit is again only 0.01 yuan or so.) Besides, judging from the distribution of waterpower resources and small hydro construction in China, there are not many small hydros that can deliver power to networks with large thermal power conponents.

Due to the current severe shortage of electric power, some places are open to customers during the flood season when small hydro produces seasonal power and limits the use of electricity in winter. For example, the power network at central Hunan has 400,000 kilowatts of load that is under seasonal availability. This causes customers great losses. Extremely abnormal conditions such as these should not be allowed to continue in the future.

(2) Some people believe that having small hydro delivering power to the large network may alleviate the power shortages in national networks. This is a misconception caused by the lack of understanding of the electricity shortage in China and the fact that electric power cannot be stored in great quantities and the generation, delivery, and consumption of electricity must be completed simultaneously. Shortage of electricity in a power network refers to the lack of the ability to supply electricity in a power network refers to the lack of the ability to supply electricity year round uniformly. For networks with large components of hydropower, this occurs mainly in the winter and spring when the rivers run dry. Some networks not only have no shortages during high water season, they have power to spare. Small hydro can only produce power when there is plenty of water so they cannot resolve the shortage problems of the network. In view of the large and medium hydropower stations currently under construction, there will be even more abundant seasonal power in the future when large hydro stations such as Gezhouba join the operation. Moreover, as the power industry develops the large networks expand and take in most of the small hydro stations; if the construction of small hydros continues aimlessly within the networks, the problems with seasonal power will be even more acute. Today the national networks seasonal energy problem can no longer be solved by just halting the thermal power production. Investigation on distributing to the large seasonal energy consumers is being actively pursued. If all else fails, the machine capacity of hydro stations under construction must be reduced and part of the water in the high water season simply let go. It is therefore clear that no more small hydros capable of only seasonal power production should be built in networks that have a large percentage of hydropower and sufficient seasonal electric energy.

(3) Some people claim that it is "mutually beneficial and complementary" to have small hydro deliver power to the network during flood season and in winter and spring the network turn around and deliver power to the area supplied by small hydro. This too is a misconception. The problems of small hydro delivering power to the network during water season are already described above. If the network returns power to

small hydro in winter, the network will have to suppress the urban industrial load and we will have a situation where the rural and county-commune "five small" industries fight for electric power with the major plants and enterprises during the dry season and shortages in the network will be aggrevated. This kind of relief only benefits small hydro and has little or no use and may even be harmful to the large networks; how could it be regarded as "mutually beneficial"?

(4) Some claim that since small hydro makes money by supplying power to the networks, it makes economic sense. Let us pass over independent small hydro stations and only look at small hydros supplying power to large networks. As discussed before, the power supplied by small hydros to a network that is heavy on hydropower is not even worth 0.01 yuan per kilowatt-hour. When supplied to networks heavy on thermal power, the value based on substituting thermal power coal consumption is merely 0.01 yuan per kilowatt-hour. But the current rate of electric power is 0.04-0.07 yuan, so the small hydro made money and the networks lost money and the national revenue decreased. Estimates based on current status show that large networks lose 100-200 million yuan on account of small hydro. In Guangdong Province, the price for electricity supplied by small hydros to the network was raised from 0.045 yuan to 0.06 yuan without approval and using the excuse that small hydros were unable to make loan payments. Some newspapers even widely publicized this, calling it "supporting the small network" (small hydro, that is.) Some provinces are using the national networks as their "storage battery" and come up with "seasonal even-out" and "yearly even-out," that is, small hydro delivers poor quality electric energy to the network during water season and the network is asked to guarantee a payback in winter, and practice the so called "same price, both ways." It is precisely this irrational investment subsidy and the high electricity price that drive some areas into building but small hydros to sell electricity to the networks. Such practices against the national interest can no longer be ignored.

(5) Then there are those claiming that building small hydro saves investment. Let us make a factual analysis of this. Building small hydro in areas with no electricity or beyond the reach of large networks is no doubt worthwhile, but building small hydro within the region supplied by large networks is a different matter. There exists a misconception that all the small hydros are built by members of local communes and teams with their own resources and do not cost the state any money. Or, so they believe, the state spends very little money and several million kilowatts of hydro stations are built. Actually the state investment on small hydro is not small. Today the so-called small hydro consists of two main components. One type is the 500 to 12,000 kilowatt small hydros built and subsidized by electric power investments from 1949 to 1979. Among them the larger ones of several thousand to 12,000 kilowatts are mostly built with state and local capital construction funds and belong to such categories as electric power, water conservation, army reclamation and local construction. Investments, equipment and material are provided by the state and other items are built mostly with subsidies from electric power departments and with local small hydro investments. On average, each kilowatt is subsidized 500-700 yuan. Preliminary statistics show that, in the period of 1970-1979, electric power departments and local organizations invested 1.6 billion yuan on this type of small hydro, out of which 1.29 billion yuan came from the power departments and 310 million yuan is the local contribution. The investment made by the power departments is actually more than 1.29 billion yuan when larger small hydros in the electric power

capital construction category are also counted. The second type is small hydros of 500 kilowatts or less, known as a rural small hydro, usually privately operated and publically subsidized. (Some comrades confuse small hydro with rural small hydro; this is incorrect.) It was decided in the 1959 conference on small hydro held in Yongchun County of Fujian Province that each kilowatt shall receive a subsidy of 150 yuan. This practice was subsequently discontinued after 1 year. Since 1977, each kilowatt received an average subsidy of 150 to 200 yuan taken out from the rural water conservation fund. This group also includes small hydros that are matching projects for large and medium water conservation engineering projects and are taken care of by capital construction investments of water conservation. In addition, a good fraction of the loans granted by The People's Bank of China and China Agriculture Bank and frontier and minority subsidies are also invested in small hydro construction. If the construction investment for the rural electric power network provided by the state to go with small hydros is taken into consideration, the money spent by the state is even more. Counting state subsidized investments and money coming from local area and the population (including labor and local material), each kilowatt required approximately 1,500-2,000 yuan. Therefore, from an investment point of view, small hydro costs about twice as much compared to large and medium hydropower.

Considering also that the volume of electric power in small hydro is only one-third to one-half of that of large and medium hydro power, the costs differ by four to six times; and the quality of the electric power is not even taken into account here. In the case of producing seasonal electric energy, it costs the large and medium power stations only 200-300 yuan per kilowatt to install repetitious facility and the amount of power produced is still more than that from small hydro. Comparing equal amounts of electric energy produced, the investments may differ by up to 10 times. From a benefit point of view, when small hydros are built the state not only receives no benefit, but it has to buy the electricity at a high price; when large and medium hydropower stations are built, all the benefits go to the state. Therefore, in a large power network, except to satisfy local rural needs, small hydros are economical only when all the large and medium hydropower potentials are fully developed and other sources of energy are very expensive, or, when small hydro can be combined with water conservation and there is no need for a special hydraulics structure. In short, small hydro construction should be included in the electric power planning of the local region and the rationality and economy of its construction can only be determined after realistic analysis and economic comparison. In addition, the communication, dispatch and relay protection equipments are rather poor and their joining the network increases the safety risks of the network. Tonglu County in Zhejiang Province has 14 small hydros latched onto one 10,000-volt line. In an effort to check the powerlines, the electric power department spent 2 days and only reached 13 stations; one station did not receive the notice and the line was not checked.

Said an old electrician: "Sooner or later we're going to lose our lives to small hydro." In order to produce more active power and make more money, small hydro often generate more active power and less reactive power. This lowers the network voltage, affects the power quality and harms the energy consumers' equipment. In some places the aimless construction of small hydro causes damages to the waterpower resource and poses added hindrance and cost in the development of large and medium hydro stations.

Status of the Small Hydro

Obviously small hydro can play a major role in solving the rural electricity and energy problems, however, there seems to be a tendency to overestimate the function of small hydro. Some people believe that "half of the counties in China can solve their rural electricity problem by relying on small hydro, so the development of small hydro should be the main thrust for future agriculture development." Some comrades go even further and think that "the development of integrated utilization of new energy resources, principally methane gas and small hydro depending on the location, may be the effective means for solving China's rural energy problem." Then there are those comrades proposing that "at the development rate of 1 million kilowatts per year, there will be 20-25 million kilowatts in 1985 and 40-50 million kilowatts by the year 2000."

In my opinion, this possibility is remote; at least it lacks a scientific basis. First, the power production of small hydro accounts for only 15.5 percent of the power consumption by agriculture and by county and commune industries. At present, the rural power comes mainly from the major networks and this trend is unlikely to change very much in the future because it is impossible for small hydro to shoulder this responsibility from either a quantitative or a qualitative viewpoint. Secondly, let us analyze the potential of small hydro. Today two figures are being used: one is the old Ministry of Water Conservancy and Electric Power estimate of 150 million kilowatts of exploitable small hydro potential, the other figure is the 60 million kilowatt estimate by the Commission on Comprehensive Expeditions. We tallied the exploitable small hydro potentials below 10,000 kilowatts in the 1977-80 general survey on waterpower potential (incomplete data on 23 provinces and municipalities) and came up with only 16.85 million kilowatts. This last figure is apparently on the low side, but, in contrast to the national total waterpower reserve, the 150 million kilowatt figures is obviously unreliable. Recently the 150 million kilowatt potential of exploitable small hydropower was renamed the theoretical small hydro reserve; this makes no sense either, because the theoretical reserve of waterpower potential cannot be divided into large, medium or small hydropower potential, only technically exploitable and economical waterpower potential can be divided into large, medium, and small. The total national reserve of waterpower potential based on the previous surveys (540 or 580 million kilowatts) did not specify the small hydro contribution. Similarly, the theoretical reserve or waterpower potential (680 million kilowatts) obtained in the recent 1977-80 national general survey cannot specify a figure for small hydro either. As a matter of fact, exploitable small hydro potential is yet to be determined. Without a clear knowledge of the resources, it is obviously unrealistic to make long-term plans or to talk about the role and function of small hydro in solving rural electric energy problems.

In order to correctly evaluate the role of small hydro in the rural energy balance, it is necessary to mobilize all the water conservation and hydropower departments in China to conduct a verification and supplemental survey of the exploitable small hydropower potential in different provinces based on the 1977-80 waterpower potential general survey. This would be highly significant for ascertaining the status of small hydro in the rural energy picture and its development direction in the future.

Some Suggestions

(1) In the future the development of small hydro should be placed outside the networks and at locations where the networks cannot reach in the near future. It should be directed toward mountainous areas without electricity or remote and island rural areas. The policy of "use what it generates, face the rural area, provide for local consumption and maintain a local balance" should be followed through. The practice of subsidizing small hydro investment and lending loans on the basis of the number of kilowatts should be changed to avoid deviations from the intended direction.

(2) Follow the principles of economics, set price according to quality and reevaluate the price rate at which small hydro delivers power to the network. The price was set too high and should be lowered. Small hydro's losses and inability to repay loans should be handled by other means.

(3) Thoroughly carry out the eight point policy and conduct an overall consolidation and improvement for the small hydros which have already joined the networks, similar to what has been done in consolidating the "five small" industries. The ones that can be improved should be given a deadline to do so; for those not in the position to improve, some should be shut down.

(4) In areas with abundant hydroelectric power and seasonal network power, the seasonal power generated by small hydro should be used locally at reduced price. Seasonal energy consumers should be opened up to conserve other energy resources in the rural area. Production of nitrogen fertilizer should also be considered, depending on the local situation. Prestorage of irrigation water has also been proposed in Sichuan Province.

(5) In the future, construction of medium and small hydro stations in areas supplied by large networks must be done under a unified electric power plan with technical and economic deliberation and feasibility studies. To join a network, the small hydro must be qualified and must make prior applications.

(6) Various levels of local governments must not use administrative orders in forcing the national networks to accept unqualified or unneeded small hydros or irrational modes of operation. Local government must not unilaterally raise the price of power supplied by small hydro to the network and should not appropriate small hydros built with state investment to their own.

(7) If the counties, communes or teams in an area supplied by a large network have the active intention and the funds to engage in power production and provide power to the state operated network, they may follow the Party Central Committee's spirit of promoting collaboration and constructing medium-size hydropower stations with regulating function and good economic performance; the network may then provide electric power and profit according to the amount of investment.

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SYMPOSIUM ON BUILDING COAL RESOURCE BASE HELD IN SHANXI

Taiyuan SHANXI RIBAO in Chinese 13 Mar 81 p 1

[Article by Pan Yaodong [3382 2565 2639]: "Symposium Held in Taiyuan on Building Coal Resource Base in Shanxi"]

[Text] A symposium organized by seven units, including the provincial association of scientific workers and the provincial institute of social sciences, has been held in Taiyuan to discuss the building of the coal resource base in Shanxi. Wang Kewen [3769 0344 2429], secretary of the provincial party committee; Tsao Pu [2580 2528], vice chairman of the Standing Committee of the provincial People's Congress; Wang Maolin [3769 5399 2651] and Yen Wuhong [7051 2976 1347], vice governors of the provincial government; and Ling Daqi [0407 1129 3823], vice chairman of the provincial CPPCC, attended the symposium.

Present at the symposium were 14 experts and professors from 11 units, including the state Scientific Commission, the state Economic Commission, the Academia Sinica Commission on Comprehensive Expeditions, the Institute of Industrial Economics and the Institute of Technical Economics under the China Academy of Social Sciences, the Ministry of Coal Industry, the Ministry of Railways' Academy of Sciences, the Ministry of Electric Power Industry, Qinghua University, Xian Communications University, and Shandong Mining College, as well as some 13 scientific and technical workers of our province.

The symposium went into the objective and scope of building the coal resource base in our province, its economic structure, and the ways to rational utilization and transformation of resources; probed into the restrictive conditions and methods of solution in building the coal resource base in our province; and studied how to make adjustments and start the building of the coal resource base during the period of nationwide economic readjustment and tackle policy problems. The symposium received more than 100 research papers on these questions and heard speeches by some 20 persons. In the discussions and speeches it was pointed out that, taking the situation as a whole, the economic structure, the distribution of productive forces, and the transformation and utilization of energy resources in our province are not rational and waste is enormous. For this reason, adjustment is called for in the first place. In order to insure successful adjustment, it is necessary to do the following: 1) Insure success

in adjusting the coal industry itself and firmly grasp the preliminary work such as coal prospecting and design. 2) Pay serious attention to the living and welfare facilities of the coal miners and solve the outstanding problems. 3) Intensify training of scientists, technicians, and workers, and raise their scientific, technical and cultural levels. 4) Take vigorous measures for safety in production. Second, it is necessary to adjust and rationalize the whole economic structure and the distribution of productive forces in the province. Third, it is necessary to conserve energy resources vigorously, raise the utilization of energy resources, cut down on consumption of energy, and gradually achieve rationalization and modernization of production and life.

The symposium took note of the favorable conditions--diverse disciplines, comprehensive study, and broad representation--and adopted the method of combining natural science workers with social science workers, combining research papers written by provincial leaders with the views of scientists and technicians, combining administrative cadres with comrades doing practical work, and combining enthusiastic discussions by experts of Shanxi with those of other provinces. The experts set forth many good views and proposals at the symposium. The symposium will sum up the discussions by the experts and express its view to the provincial party committee on the building of the resource base.

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SHANXI PROVINCE REPORTS INCREASE IN COAL PRODUCTION

Taiyuan SHANXI RIBAO in Chinese 6 Jun 81 p 1

[Article by Han Xiangqian [7281 0686 0467]: "47.69 Million Tons of Coal Produced in Shanxi During January-May"]

[Text] Inspired by the spirit of the Central Committee Work Conference, the vast number of workers on the provincial coal front have a high morale and have extracted more coal to support the entire country. Safety conditions have continuously improved and production has gone up steadily. From January to May, 47.69 million tons of raw coal were produced in the province, fulfilling the plan 105.67 percent or topping the target by 2.5 million tons, 490,000 tons more than in the same period of last year, which is a record level. The output of washed coal reached 1.43 million tons, fulfilling the plan 105 percent. The output of anthracite reached 1.94 million tons, topping the target by 280,000 tons and fulfilling the plan 116.7 percent.

Along with overfulfilling the coal production tasks, the safety conditions were consistently improved at all coal mines in the province. Accidents causing deaths dropped 17.06 percent at all the coal mines compared with the same period of last year. Safe and balanced production was carried out at the Yangquan, Xishan, Jincheng, Luan, Dongshan, Xuangang, Fenxi, and Xiaoyu mines. As to measures taken to speed up the pace of readjustment and improve the working conditions, work on nine ventilating shaft projects is being speeded up; three gravity pressure ponds for prevention of dust have been built, and 145,000 meters of pipeline have been laid for sprinkling water. Some coal mines have gone a step further and strengthened the water-sprinkling, water-injection and fire-extinguishing systems, thus effectively insuring safety and improving the working conditions.

In May, leading comrades from the State Council inspected the coal mines in Xishan, Yangquan, Luan, and Jincheng. Since then, acting on instructions from comrades of the State Council, leaders of various bureaus and mines have gone directly into the workplaces to make investigations and research, and have solved problems upon discovery. Relying on the masses, they have concentrated on civilized methods of production. As a result, the production level has risen sharply. In May the province produced 10.26 million tons of raw coal, 55,000 tons more than in April.

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